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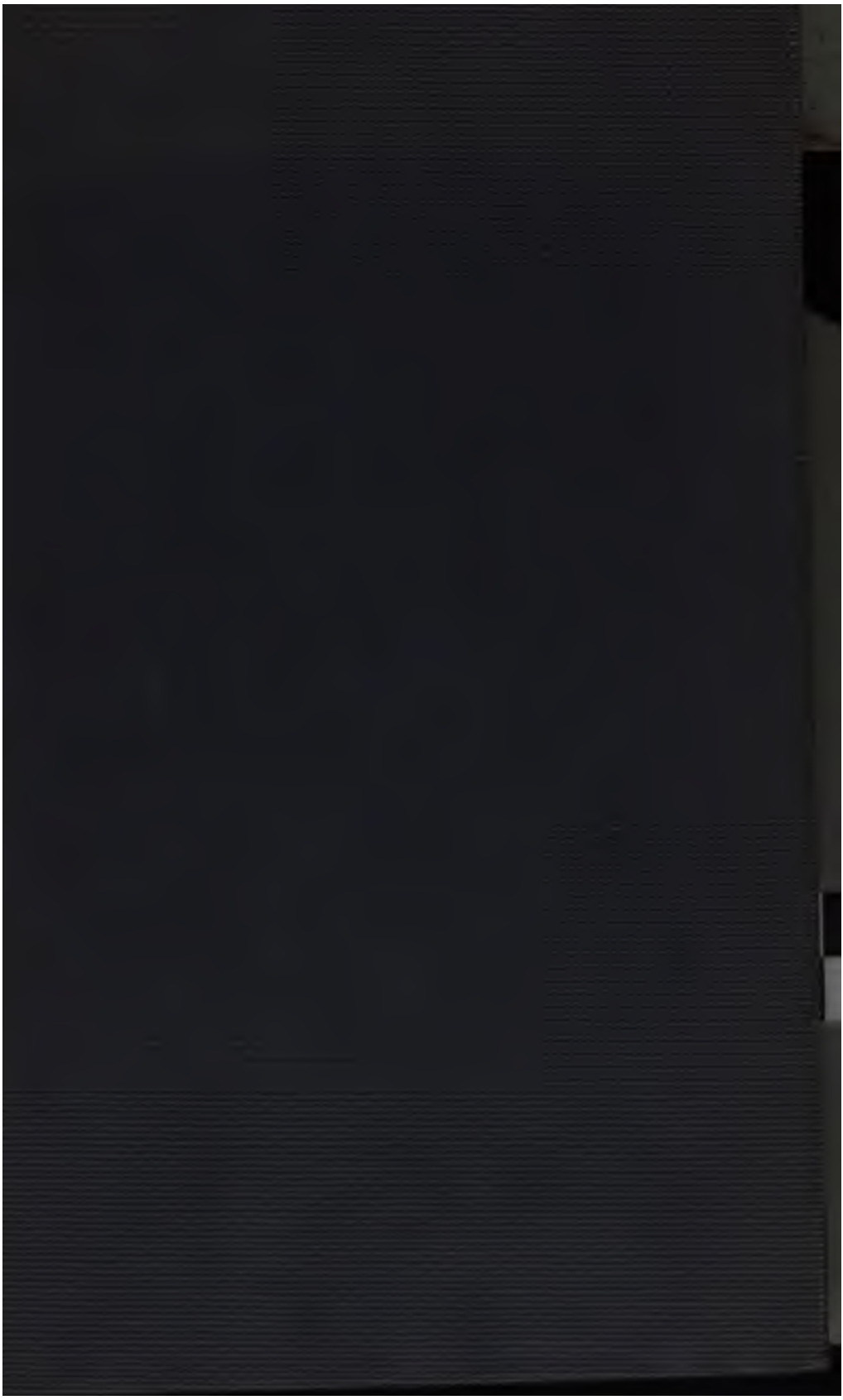

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THE

TRUE LAW

OF

POPULATION

SHEWN TO BE CONNECTED WITH THE

FOOD OF THE PEOPLE.

BY THOMAS DOUBLEDAY,

AUTHOR OF "FINANCIAL HISTORY OF ENGLAND;" "MUNDANE MORAL GOVERNMENT," &c., &c.

"But the more they afflicted them the more they multiplied and grew."—EXODUS.

"*Old* Families last not THREE OAKS."—SIR THOMAS BROWNE.

"Steriliora cuncta pinguia, et in maribus et in feminis."—PLINY.

THIRD AND ENLARGED EDITION,
WITH A POSTSCRIPT.

LONDON:
SMITH, ELDER & Co., 65, CORNHILL.
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1853.

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PREFACE.

In venturing to bring a third and enlarged edition of the following work before the public, its author has little of prefatory matter to adduce. Having, from the first, aimed to build an hypothesis upon the sure foundation of a multitude of facts, all pointing one way and all corroborating each other, his sole attempt in the present volume has been to add to the number of these facts. Without such a foundation as this, theory, however plausible, is of little value. In his quest of materials, therefore, the author has not been sparing of research; and with the more prominent proofs of the universality of the principles laid down, he has not hesitated to note the minutest truths that seem to bear upon the question. Of the theory itself, as originally put before the world, he has nothing to retract nor to alter; nor has he anything to add to it. To the principles of increase

and of decrease amongst mankind, as well as throughout the animal and vegetable world, as originally stated in the first edition of this Essay, he entirely adheres. The additions made are those of corroborative facts only, to the store of which time is constantly adding.

In the Postscript of the present edition, the reader will find brief replies to the objections brought against this theory, since the period of its first publication. These objections are embodied in the Report upon the first edition of this work, laid before the French Institute by M. Villermé, and in an article in a recently published number of the new series of the "Westminster Review," since republished separately. How far such objections have succeeded in invalidating any portion of this work the reader must judge; and in his reader's hands the author confidently leaves the final decision.

Newcastle-upon-Tyne, August 1st, 1853.

PREFACE TO THE FIRST EDITION.

Of the following work, the author may justly affirm, that perhaps no treatise, embodying a theory of a novel and, at first sight, somewhat singular nature, was ever begun with fewer prejudices or preconceived notions relative to it, on the part of the writer. It was indeed purely by accident that the author was brought upon the train of thought, which being pursued in all its ramifications, resulted in the present work. He by no means intends, of course, to assert that he had not at one time or other examined the various theories that have been put forth on the puzzling subject of Population, nor to deny that

he may have been bewildered by some and staggered by others. Still, for many years, this subject and the various views of it by various writers, had been put aside as it were by him, as matters with regard to which he was neither prepared to record an assent or dissent : nor was his scepticism lessened by the following admonition :—Happening, in the presence of a relative, long since deceased, remarkable both for the sagacity and extended benevolence of his general views on philosophical subjects, to draw some of those startling, though not illogical, conclusions which seemed to flow from theories then recently broached as to this subject, and much in vogue at the time, the reply was this :—"Depend upon it, my dear *nephew*, that you and I may safely decline to yield an implicit assent, though we may not on the instant be able to refute them, to views, from which consequences such as you have drawn, legitimately flow. Though I may not live to see it, nor you, a time will yet come when this mys-

tery will be unveiled; and when, a perhaps now mysterious, but, beyond doubt, a beneficent law will be discovered, regulating this matter, in accordance with all the rest that we see of God's moral government of the world." This judgment, delivered with a solemnity and earnestness rather unusual with the speaker, made a deep impression, and from that time forward, and for many years after, the author regarded the question of population as one of those insoluble problems which are put in his way to humble the intellectual pride of man, but at the same time to stimulate his inquiry into the laws of his own nature and of the creation around him, with a humble reliance that, as heretofore, everything which shall be unfolded will only show forth, more and more, the wisdom and benevolence of the great Architect of all things.

Chance, the author of these sheets has already said, led him to stumble upon the chain of reasoning which, with its results, he now ven-

tures to lay before the Public. It may on that account probably be more easy to be believed by his readers, that, entering upon his researches without any preconceived opinions or views as to the shape which they were to take, or the goal at which they were to arrive, he followed the clew of evidence with the sole wish of arriving, if possible, at the truth, unembarrassed by any accompanying considerations as to the bearings of that truth when discovered; being well convinced, where they *are* the bearings of truth, they must be good. In the course of this inquiry, however, be it begun under what circumstances it might, it has certainly been impossible for an inquirer not to perceive, from time to time, that the positions necessarily arrived at sometimes as necessarily involved considerations connected with the general policy of nations, and the acts of governments. This could not be avoided, because this is involved in the nature of the subject itself. When, however, the author has deemed it proper to draw collateral

conclusions, as requisite to the full and complete elucidation of his subject, he has adhered to the rule of only deducing such general conclusions as were plainly requisite for that purpose. Even of such conclusions he has drawn as few as possible; partly from the conviction that to load a general argument with minute collateral inference is ill judged in the reasoner who does so; and partly from a wish to keep his essay clear of those party conclusions, or political feelings, which, often as they have assisted to mar philosophical discussion, have never yet advanced it one single step.

Although, however, he disclaims any regard foreign to that for the truth, which ought to actuate all writers, as mingling itself with his pursuit of the truth as to this question, the author yet is not disposed to deny that he felt both strengthened and encouraged in this course by the discovery that, as he proceeded step by step, the facts, as they unfolded themselves,

accorded with his general convictions of the benevolence of the Deity, and the wonderful providence by which, under the agency of an unseen law, unrecognised and unthought of, the happiness of mankind is often regulated and achieved upon a scale of moral government, of which the human eye can only see portions, and which the human intellect can only comprehend in part. It has, indeed, ever been his creed that the philosophy, which is in admitted accordance with that benevolence which is the first attribute of that great Being, whose ways, however, are of necessity often inscrutable by His creatures, has at all events the weight of *a priori* recommendation in its favour; for, although that which may, to imperfect observers, seem to militate against God's providence *may* be true, that which accords with it *must*, as far as such accordance is concerned; and it must ever be the case with paradoxes which seem exceptions to the laws of Providence, that they involve in themselves a contradiction

which, on the first showing, destroys their own existence; because, upon the postulate of the goodness of God, all reasoning, moral or physical, is ultimately and proximately founded, nor can such exist in connection with its denial.

The concluding chapter of this volume will be found to treat of a class of subjects as to which the writer is avowedly unlearned. The considerations there detailed were rather forced upon than sought by him; and being so, he did not deem there was either impropriety or arrogance in describing views which may very possibly turn out to be erroneous and fanciful, provided they were uncontradicted by the writings of those versed in such knowledge, and qualified to speak with authority on questions of physiology. As far as the author can ascertain, he has not, in entertaining the peculiar notions there detailed, run counter to any fact laid down and admitted by physiologists or nosologists; and, therefore, neither

coming, nor desirous to come, in collision with any one, he may be readily pardoned for having, perhaps rashly, taken up views which, if they are unfounded, are at all events innocuous, inasmuch as, if not scientific in themselves, they do not seem to interfere with the science of others. If they do not help the author's argument, he trusts they may not hurt it, being in themselves perfectly extrinsic; and if true, only calculated to account for facts which have been already demonstrated.

Having commenced this work in a spirit of calm and candid inquiry, the author has judged it proper, if not necessary, to keep his style somewhat in accordance with his subject-matter, and to write plainly, upon a dry, though important question. He is an inquirer, and not a partisan; and therefore, happily, as he deems it, excused from attempting either to recommend his theme by eloquence or the artifices of rhetoric, or to adorn it by the extraneous

ornaments of figurative or florid composition. He trusts the judicious reader will not permit this to operate to his disadvantage, but the contrary; and whilst treating a subject like this now under discussion, he cannot but think that he who would judge of his book from the ornaments of style it might or may not contain, is adopting a criterion little less strange, on such an occasion, than that of Heliogabalus, who is said to have formed his opinion of the City of Rome from the great quantity of cobwebs that were found in it.

In fine, this book is not addressed to any persons professing any particular set of opinions, philosophical, religious, or political; but to the thinking, the candid, and the good of all sects, persuasions, and parties, whosoever and wheresoever they may be. In their hands the writer respectfully leaves it, assured that, whatever the judgment of the Public may be as to its matter and argument, his motives will be respected and

his attempt unblamed, even by those by whom its failure, if a failure it be, may not be lamented.

It may be proper, in conclusion, to add, that the present volume has in part owed its existence to the attention which an outline of the theory now attempted to be established, given in *Blackwood's Magazine* for March 1837, under the title of "A Letter to the Right Honourable Lord Brougham," excited at the time of its publication. The author can only hope that the call which was at that time made for his more mature opinions upon the subject, in an enlarged form, may not remain unechoed now that the call is responded to by him; and that the attention which was awarded to the sketch of 1837, may not be refused to the volume of 1841.

Newcastle-upon-Tyne, March 9th, 1841.

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THE

TRUE LAW OF POPULATION.

CHAPTER I.

A FEW INTRODUCTORY STATEMENTS AND REFLECTIONS.

THE Law of Population is undoubtedly one of the most important questions that can be submitted to human reason. On a cursory or superficial view, it may seem to be the contrary of this. Whilst so much of the earth remains uncultivated and untouched by the hand of man, and whilst that which is so touched is so imperfectly dealt with, it may appear rather a curious than a natural anxiety to sum up the actual or probable numbers of mankind, and still more so

to anticipate evils from a superflux of population. To the near and patient inquirer, however, appearances are different.

If it be true that the inhabitants of any country or of all countries tend perpetually by their increase to outstrip their means of subsistence, the evil consequences of such a state of things must, at all times and continually, be felt with more or less of severity; it is of no avail to say that the earth can or will, if properly cultivated, afford ample subsistence for all that have ever yet lived upon its surface. It has not been so cultivated; the increase of food, so far from having been pushed up to those limits which some writers have, and perhaps not improperly, assigned as the highest possible, has in most countries been little better than stationary. The question is, therefore, Has the tendency of living beings rapidly to increase been existing through all this foregone period, unchecked by anything but the mere want of corresponding subsistence for those who should be born? If it *has*, then, as it appears to the author, a constant state of suffering, more or less mitigated by various national circumstances, must have existed in all times past, or nearly so. If it has *not* (as the author of this volume affirms it has not), the ONUS is to show

what OTHER PRINCIPLE has operated to check population from time to time, to prove the existence of such a principle, and to point out the times, the places, and the mode of its operation. To establish and explain this principle is the object of the following sheets. The immense importance of the subject, may, it is hoped, excuse and help to overcome the dryness of some of the details; nor will the candid reader, on a topic at once so mysterious, and hitherto unexplained, suffer himself to be startled or turned aside by the apparent strangeness of the first enunciations of views on this subject (as the author conceives), nearly altogether new, and of facts certainly brought together and laid before the public in their present form for the first time.

It can hardly be expected of any one writing of matters so abstruse, that he should extract from them other entertainment than such subjects are in themselves calculated to produce. He can only, as a matter of prudent adventure, attempt to place the different points in as clear a light as possible, and with as little waste as may be, of the time and patience of his readers: elucidating where he can, all that is naturally involved or dark, and curtailing where he can, all that is naturally diffuse or voluminous.

It is not necessary, nor would it indeed expedite the purposes of clear arrangement or lucid reasoning, to state in this part of the present work the accidental causes which led the author to the following inquiry. Suffice it at present to say, these causes were the result of another inquiry, so far collaterally bearing upon the subject now under discussion, as to throw a sudden light upon its fundamental principles, including as it did, a portion of the proofs of the reality of those principles. Nor was the author dissatisfied, but quite the contrary, with the manner in which he was thus accidentally led to the road which he has followed. In matters of reasoning, it is upon the whole better to discover a track accidentally than after search for it; because in the former case the imagination is in abeyance, and unconcerned in the result.

When men eagerly seek for a theory, they are too prone to hope they have found the true one, and it is needless to say that we are too ready to believe that which we earnestly wish. A discovery by accident, on the other hand, comes recommended only by itself: as no credit is sought for sagacity, and no reward for ingenuity expected, fancy, at all events, is not moved to interfere. The pleasure which alone is due to

the discovery of truth, is not so liable to be given to that self-love which deceives us into the idea that such discovery is ours as matter of merit, because it has come unsought, and of course unanticipated. Such was the case with the contemplation of natural facts which led the author to attempt this exhibition of them, and being so, he trusts the remark is neither irrelevant nor useless.

In order to come in the clearest and fairest manner to the subject of this essay, the author deems the following to be the most advisable course. To state, first, in the tersest and at the same time, most lucid manner he can, the law by which he supposes population to be governed and regulated; next, to prove the existence and operation of this law from such facts as he has collected, which in his opinion tend to demonstrate either or both of these points. The GREAT GENERAL LAW then, which, as it seems, really regulates the increase or decrease both of vegetable and of animal life, is this, that whenever a *species* or *genus* is *endangered*, a corresponding effort is invariably made by nature for its preservation and continuance, by an increase of fecundity or fertility; and that this especially takes place whenever such danger

arises from a diminution of proper nourishment or food, so that consequently the state of depletion, or the deplethoric state, is favourable to fertility; and that on the other hand, the plethoric state, or state of repletion, is unfavourable to fertility, in the ratio of the intensity of each state, and this probably throughout nature universally, in the vegetable as well as the animal world; further, that as applied to mankind this law produces the following consequences, and acts thus:—

There is in all societies a constant increase going on amongst that portion of it which is the worst supplied with food; in short, amongst the poorest.

Amongst those in the state of affluence, and well supplied with food and luxuries, a constant decrease goes on. Amongst those who form the mean or medium between these two opposite states—that is to say, amongst those who are tolerably well supplied with good food, and not overworked, nor yet idle—population is stationary. Hence it follows that it is upon the *numerical proportion* which these three states bear to each other in any society that increase or decrease upon the whole depends.

In a nation where the affluence is sufficient to

balance, by the decrease which it causes amongst the rich, the increase arising from the poor, population will be stationary. In a nation highly and generally affluent and luxurious, population will decrease and decay. In poor and ill-fed communities, population will increase in the ratio of the poverty, and the consequent deterioration and diminution of the food of a large portion of the members of such communities. This is the real and great law of human population, and to show that it unquestionably is so, must be the aim of the following pages.

In bringing forward the great variety of facts bearing upon this important inquiry, the author will begin with those exhibited by the vegetable kingdom; he will next proceed to the animal creation, wherein the same principle is more distinctly developed, ending with the human world, the numbers composing which he will prove to ebb and flow as one or other of the different states he has described more or less prevails; offering, in conclusion, such general reflections as are necessary completely to elucidate his scheme, and to show not only its wonderful agreement with the state of the world, as it is known to exist and to have existed, but

its admirable unison with the wisdom and goodness of that divine Providence which "saw all that it had made," and saw that all was "very good," until marred by the wickedness, the folly, the error, or the ignorance of man.

CHAPTER II.

THE LAW OF INCREASE AND DECREASE IN THE VEGETABLE AND ANIMAL KINGDOMS.

TURNING now to the vegetable kingdom, the author would point to the acknowledged existence of this principle in the theory and practice of all Horticulturists, Gardeners, and others engaged in raising trees, shrubs, flowers, and vegetables. It is a fact, admitted by all gardeners as well as botanists, that if a tree, plant, or flower, be placed in mould, either naturally or artificially made too rich for it, a plethoric state is produced, and fruitfulness ceases. Upon trees, the effect of strong manures and over-rich soils is, that they run to superfluous wood, blossom irregularly, and chiefly at the extremities of the outer branches, and almost or entirely cease to bear fruit.

With flowering shrubs and flowers the effect is, first, that the flower becomes double, and loses its power of producing seed; next, it ceases almost even to flower. If the application of the stimulus of manure is carried still further, flowers and plants become diseased in the extreme, and speedily die; thus, by this wise provision of Providence, the transmission of disease (the certain consequence of the highly plethoric state, whether in plants, animals, or in mankind) is guarded against, and the species shielded from danger on the side of plenty. In order to remedy this state when accidentally produced, Gardeners and Florists are accustomed, by various devices, to produce the opposite or deplethoric state; this they familiarly denominate "giving a check." In other words, they put the species in danger in order to produce a correspondingly determined effort of nature to ensure its perpetuation, and the end is invariably attained. Thus, in order to make fruit trees bear plentifully, Gardeners delay or impede the rising of the sap by cutting rings in the bark round the tree. This to the tree is the production of a state of depletion, and the abundance of fruit is the effort of nature to counteract the danger. The fig, when grown in this climate, is particularly liable to drop its fruit

when half matured. This, Gardeners now find can be prevented by pruning the tree so severely as to give it a check; or, if grown in a pot, by cutting a few inches from its roots all round so as to produce the same effect. The result is, that the tree retains, and carefully matures its fruit.

In like manner, when a gardener wishes to save seed from a gourd or cucumber, he does not give the plant an *extra* quantity of manure or warmth. He does just the contrary: he subjects it to some *hardship* and takes the fruit that is *least* fine-looking, foreknowing that it will be filled with seed, whilst the finest fruit are nearly destitute. Upon the same principle, it is a known fact, that after severe and long winters the harvests are correspondingly rapid and abundant. Vines bear most luxuriantly after being severely tried by frost; and grass springs in the same extraordinary manner. After the long and trying winter of 1836-7, when the snow lay upon the ground in the northern counties until June, the spring of grass was so wonderful as to cause several minute experiments by various persons. The result was, that in a single night of twelve hours the blade of grass was ascertained frequently to have advanced full three-quarters of

an inch; and wheat and other grain progressed in a similar manner.

Aware of this beautiful law of preservation, the Florist, when he wishes to ensure the luxuriant flowering of a greenhouse or hothouse shrub or plant, exposes it for a time to the cold. The danger caused by the temperature, too low for the nature of the species of plant, is followed invariably by an effort of nature for its safety, and it flowers luxuriantly; and if a seed-bearing plant, bears seed accordingly.

There is another curious modification of this law exhibited by the vegetable creation, and this is, that immediately before the death, or the sudden cessation of fruitfulness of a tree or shrub, it is observed generally to bear abundantly. This is remarkably the case with the pear and apple when the roots touch the harsh, cold blue clay, or any other soil inimical to the health of the tree. It is a last effort to preserve and perpetuate the species, and is the effect of that state of *depletion* through which the tree passes to sterility and death.

The singularly close analogy which these facts bear to that which can be proved, and indeed is well known to take place with the human

female, when fed on insufficient food, or when married too near the usual period of cessation of fertility, will be more fully adverted to in the proper place. In the meantime, what can be more pleasing than to contemplate this beautiful provision of the Governor of all things, by which fruitfulness is *increased* when the danger arises from insufficient nourishment for the plant or vegetable, and, on the other hand, decreased when the peril springs from a surplusage of what is needful. Thus carefully is the species guarded from extinction by want on one hand, and by implanted disease and vitiated and irregular vegetation on the other—a two-fold distribution of extremes, with a medium of average and moderate fruitfulness between them; that happy mean being disturbed only for a time to ensure as far as possible a return to it.

Turning our attention now to the animal creation, this law will be found to be still more distinctly developed, as well as more generally observed and acted upon.

The practical evidence of the farmer, the grazier, and the breeder of horses, is here corroborated by, and, in its turn, helps to prove, the theories of the Physiologist and Natural Historian; whilst, with the human animal, these

theories are again demonstrated, both by the theories and practice of the Physician and Pathologist.

There cannot be a doubt that, with the animal creation—including in that term birds and quadrupeds (of the habits of fish we know little or nothing)—fecundity is totally checked by the plethoric state, when induced, and increased, and rendered doubly certain, by the existence of the deplethoric or lean state; whilst a moderated prolificness is the effect of the state between the two. This is more or less the case even with the most prolific animals. The rabbit and the swine are extraordinary in this respect; yet every schoolboy knows that the doe, or female rabbit, and every farmer and breeder knows that the sow will *not* conceive if fed to a certain height of fatness; and that the number of the progeny is generally in the *ratio* of the *leanness* of the animal. All cattle-breeders know the same law to be especially true in the cases of the mare, the cow, and the ewe, with which leanness is indispensable to conception; and upon their knowledge of this truth they invariably act. In the mare this is sometimes evinced in an extraordinary degree. A friend of the author, who, being of the medical pro-

fession, is peculiarly observant of all cases of this nature, has assured him that he has known a highly-bred blood mare, which, for a length of time, appeared to be incurably barren, and from which the owner was naturally very desirous to obtain a breed, rendered fertile, and ultimately the dam of a numerous progeny, by being put literally to the plough and cart, fed sparingly, and worked down to a state of extreme leanness and temporary exhaustion, by this unusual employment.

In the sheep, however, this principle of increase or decrease is most nicely developed. It is invariably found that, if over-fed, sterility is the consequence. On the other hand, in accordance with the leanness of the animal, a produce of one, two, or three lambs takes place. Upon their knowledge of this fact the improvers of the breed of this animal are accustomed to act. In order to afford the best chance of a perfect animal, it is believed that a produce of one lamb at a birth is desirable; and this the breeders of sheep contrive to secure by apportioning the food of the ewe to such a nicety, that, avoiding sterility on one hand, and a double or triple birth on the other, a single lamb is almost invariably the offspring of the animal so limited. Of the

effect of "condition" upon the fertility of animals, this seems to be one of the strongest of all possible proofs. It is also a fact known to all stock-farmers, that during severe seasons, when food is scarce, most lambs are, on the average, produced. Mild, open winters are not favourable to the increase of sheep, because, during such winters, grass is plentiful.

The conflicts that take place amongst all wild grazing animals at the time of rutting or breeding are no doubt intended for the same end—to lower their condition to the prolific point.

Upon birds the same state of plethora produces similar defertilising effects. This is well known to be the case with domestic poultry, of which the little familiar French fable of "Une Femme et sa Poule" is an amusing evidence. The good dame, desirous of an increased supply of eggs, crams the poor pullet with double rations of grain. The hen, as well she may, becomes enormously fat *(fort grasse)*, and the consequence is, that not another egg will she lay. With other domesticated fowls, similar causes are known to produce similar effects. Tame pigeons will not increase if pampered with an unlimited quantity of food; and to stop the produce of the pigeon-house it is equally effectual to cram them

with victuals or to deny it altogether; in which latter case, inexpert in the art of catering or feeding, they are compelled to wander so long and far in search of it, and are altogether so ignorant of their duty, that they cannot supply their young ones; in the former they have none to supply.

Upon the whole, there can hardly be a doubt that as far as the vegetable creation and the lower animals are concerned, the rule is palpable and invariable, that over-manuring and over-feeding check increase; whilst, on the other hand, a limited or deficient nutriment stimulates and adds to it. In support of the truth of this law we have the united testimony of the cultivators of the ground, of all grades and descriptions, and of the numerous persons who make it the business of their lives to superintend the breeding of animals. The facts supported by these testimonies do not appear in books, nor are much regarded, save by those whose livelihood depends upon their knowledge of them. They are, however, confirmed to be truths by a series of experience, sufficient to establish anything capable of being demonstrated by evidence. That they have not been thought to be of that value which they really are, is not extraordinary. The

persons cognizant of them never dreamed of reasoning further, not having the slightest idea of the existence of any controversy upon which such facts might be supposed to be capable of throwing light. The long state of abeyance as matter of reasoning, and as part of the foundations upon which conclusions more important were to be built, in which they have been held, does not however detract from their value. Many estimable things have been tossed about as rubbish for centuries, before their real bearings were discovered; and such has been the fate of these —no uncommon fate. Millions of men must have witnessed the fall of an apple from its tree, without obtaining a hint of the grand principle of the attraction of Gravitation. Yet it is no less certain than true, that, from the effect of this apparently simple circumstance upon the mind of Newton, arose the "PRINCIPIA."

CHAPTER III.

THE LAW OF INCREASE AND DECREASE OF THE RACE OF MANKIND.

THAT the law of Increase or Decrease as above described, is that which acts throughout the vegetable creation, as well as the world of inferior animals up to man, as the regulator of the numbers of the different species, the author thinks he has shown abundant reasons for supposing. This supposition, however, is not meant by any means to shut out, nor does it at all necessarily shut out, the truth of that assertion which affirms that to different species of animals or plants different *capabilities* of increase are assigned by Nature. The quantity of seed borne by one plant differs naturally from that borne by another under the most favourable circumstances. The power of increase in some kinds of fish is calculated to be

far beyond that of any other animal or vegetable production of Nature. Birds and beasts of prey seem especially also to be more strictly limited by Nature in their powers of increasing their numbers, than those which feed, either in part or altogether, upon vegetables; for which more than one probable reason shall be assigned in the proper place. All that is meant is, that, be the range of the natural power to increase in any species what it may, the *plethoric* state invariably checks it, and the *deplethoric* state invariably developes it; and that this happens in the exact *ratio* of the intensity and completeness of each state, until each state be carried so far as to bring about the actual death of the animal or plant itself.

This law, then, being the regulator of the numbers of all living or semi-living creatures, up to man himself, we now come to the great question of all, viz:—whether this analogy is continued; and whether the race of mankind is subject to the same law of fertility, with the rest of that creation at the head of which he seems to stand? The author is well aware of one objection, plausible indeed, but the reverse of solid, which will here be urged against him, and it may as well be stated at once, and disposed of.

"What folly is it (will the objector exclaim) to place animals acting on instinct merely, and destitute of mind, properly so called, upon a level with rational man, or to imagine there can be any such analogy as this between creatures so totally dissimilar, and so far removed from each other?" "Reason (it will be said) was given to man for the very purpose of checking and controlling his propensities and passions; and yet this is to be set at nothing—thrown out of the question—a merely gross and animal check substituted for that of the '*mens divinior*;' and men and women are to be fattened into sterility, or starved into fruitfulness, like the stock upon a farm!"

Now, in reply to this, it is to be observed, that it is not here denied that reason was given to mankind as a "check" and "control" upon their passions, amongst other things. There is not the slightest intention to deny this directly or indirectly, provided the proper and obvious meaning of the term "check," be adhered to. What, then, is the meaning of this verb-active "to check" or to "control?" It is the power to withstand an impulse—to hold it in a modified dominion—to regulate its direction and extent of course, as contradistinguished from the power to eradicate,

to destroy, or totally to keep down or neutralize. This is the meaning of "check" or "control;" and doubtless men's reason may, and does, in all cases, more or less, exercise this power over their passions. No man, however hungry, satisfies his soul at another's board, save by invitation; no man, however thirsty, ever drinks at another's spring without leave given. But this is the regulation, not the extinction, of passions co-existent with human nature itself.

That the intercourse between the sexes must, in all civilized states of society, be regulated and bound down in various ways, is indisputable and undisputed. But still this is regulation, and not extinction. To be the husband of one wife is a precept salutary in itself; and which, in a state of imperfect civilization, is violated more in appearance than reality. It is a precept which religion teaches, nature encourages, and common sense ratifies. To modify further would be to extinguish, not to regulate; and against this Nature rises at once in arms, and has decreed that such attempts shall be as vain in effect as they are foolish in imagination.

There is every reason to believe, that, by a special provision of nature, all attempts to limit the number of children, by delaying to middle-

life the period of marriage, are vain and futile; inasmuch as the rapidity of conception, at all events, amongst those classes whose manner of living presents no bar to fertility, may be shown to *increase* in the proportion of the *lateness of the time* when marriage has taken place.

This shall be proved in the course of this essay; in the meantime the author trusts that he has drawn a distinction which no reader can fail to recognise: viz., that regulation is one thing, extinction, or total denial, another; that reason is competent to the first, but eschews the second, as a task not to be achieved, and an attempt at domination, against which Nature must ever revolt, and which no sophistry, however subtle, can render for a moment palatable to the commonest, as well as best feelings of mankind. Having thus cleared the ground of these matters of objection, such as they are, it now remains to go at once into the important part of this treatise, into the pith and marrow of this "great argument," and to show that the law of population here described applies itself also to mankind and regulates the numbers of human, as it does that of other created beings.

The best method, as it appears to the author, to effect this, in a manner the most clear and

distinct, will be, first, to give those general, but striking instances of the existence of this law, which are to be observed in the general history of mankind, ancient and modern. Next, to demonstrate it by reference to limited bodies of men, as to whose exact history and circumstances we have accurate knowledge; and then to prove that it is borne out by the actual differences in the condition of nations existing at this day, as shown in the best statistical accounts of that condition.

Thus we shall first trace those general and striking lights which historical annals chance to afford, and which are the more valuable because they are wholly accidental.

Next, we shall see these general views accurately borne out by more minute accounts of small bodies of men, the requisite minutiæ of whose history we have in our power; and these proofs again we shall find to be remarkably corroborated by the actual state of the nations of the world, as at present known:—a body of evidence so varied in detail, and so overpoweringly tending in one direction, as to constitute little short of positive or direct demonstration.

One of the oldest traditions of facts, bearing evidence of the truth of this Law of Population, is undoubtedly that which attributes a remarkable

fecundity to the "Icthyophagi," or those nations who lived chiefly upon fish. That this tradition has existed time immemorial, is quite undoubted, and upon it is built the mythological fiction of Venus being sprung from the Sea. Strange mixture of fancy with truth; to the latter of which, however, Aristotle bears testimony; and which, in point of fact, is admitted and attempted to be accounted for by political economists of the present day. That a fish-diet is the cause of unusual prolificness no one can doubt, who knows anything of the Highlands and Western Islands of Scotland, where the food of the inhabitants is, in a great measure, derived from the Sea; where even the eggs of sea-fowls are not eaten, but made an article of traffic; and where the only animal food tasted by the poorer natives is an occasional "braxie," or sheep, which has died of the rot. Amongst these poor people, a family of from ten to twenty children is by no means an uncommon occurrence, but the contrary; and instances of females who have borne above twenty children are far from rare.

To suppose that a fish-diet is peculiarly the cause of this is absurd; because, in Ireland, where the diet is vegetable chiefly, and that vegetable the light and watery potato, the same results

occur. It is notorious that from the Sister Island, as that country is quaintly termed, the great bulk of the cattle and stock of all kinds is exported, either alive or as salted provisions. It is notorious that such wheat as there is grown shares the same fate, and that the bulk of the people rarely even taste the luxury of a bit of bacon; and that their exclusive food is the potato, with such supplies of fish as their seas and lakes afford them. The consequence of this is, that this beautiful grazing country, by nature intended to be pastoral, and which, like other pastoral countries, would have been thinly peopled, had the population been permitted by their landlords to live upon the produce of their own green and rich fields, is over-populated to extent only inferior to that to which China and India are so, where also the use of animal food is equally almost unknown, and where emigration is less frequent. It can indeed hardly be doubted that, but for the continual emigration from Ireland and the Highlands of Scotland, which is perpetually going on, the populousness of these countries would, at no remote period, equal that of India or even China, overflowing with human beings as this last-named immense district has doubtless been for many ages.

Of the antiquity of the observation, that very poor persons are most fruitful of offspring, we have a proof in the Latin word "Proletarius," which is derived from the noun "Proles,"—"Offspring;" and which the Romans used to designate the poorest class of citizens, seeing that they gave most children to the republic who had nothing else to give. The French use the same word, "proletaire," in the same sense.

It may probably here be objected by many readers that this is all "gratuitous assertion;" that the facts of the populousness of Ireland, the Scotch Highlands, India and China, may be incontrovertible; that it may be equally undoubted that the food of these countries is vegetable. Still it will be demanded, where is the proof that this fecundity is the effect of the poverty and scarcity of the food of the inhabitants?—that the child-murders of China, the famines amongst the millions of India, and Ireland, and the Hebrides, are the ultimate effects of rice and potatoes?

To this there is a general as well as a particular answer; and the general answer should first be given. That answer is a general appeal to the admissions of all medical and physiological authorities of modern, and many of ancient times,

that such diet has, in fact, the prolific tendency here ascribed to it; and a general appeal to existing populations, which are universally found *thin* in pastoral countries, where the food is animal food chiefly; *denser* where it is mixed partly with vegetable aliment; *denser still*, where it is vegetable only, but with plenty; *densest of all*, where it is vegetable, but with scarcity superadded.

The evidence of medical men is now unanimous as to the effect of the plethoric state in checking fecundity in the human female, both by preventing conception and occasioning miscarriage; but of the opposite effects produced by a poorer and lower diet, the proofs are commonly known to be perpetual. A curious instance of ancient acknowledgment of this indubitable fact occurs in the "History of the kings of Italy," by Thesaurus; with annotations by Castiglione. Adverting to the want of heirs experienced by the grandson of Charlemagne, Charles the Fat (Carolus Crassus), the annotator says, "Carlo, per la superchia pinguedine, era sterile." And, as his authority for ascribing the sterility of Charles to his obesity, he quotes Pliny, who, in his Natural History, liber ii, cap. 37, says—"Steriliora cuncta pinguia, et in maribus et in feminis." In a similar spirit of philosophical

observation, Sir John Dalrymple, in his Memoirs, p. 174, ascribes the over-population of Ireland and the seeming apathy, often evinced by the Celtic race in the midst of privations, to the use of meagre diet, from generation to generation. His words are these—"The genius of a nation often depends upon the food upon which they are nourished. The potato plant upon which most of the common people of Ireland, at that time, subsisted, whilst it *increased the population, debased* the character of the nation." Swift, in the same spirit, speaking of a certain class of Irish, says, "Here are ten thousand persons, reduced to the necessity of a *low diet* and *moderate exercise*, who are the *only great restorers* of our breed." Dr. Cheyne, and the older dietetic writers, all notice these facts; but the accumulative evidence is now considered by medical persons as irresistible.

There are numerous instances where the occurrence of misfortune, and consequent privations, have given families to those who were childless in their prosperity. Amongst these may be instanced, as now living, one of the Russian Princes (Prince Trubetskoi), banished by the Czar, Nicholas, to Siberia, for conspiring in favour of Constantine. His lady followed him in exile. They

were before childless, but have now a considerable family. As elucidating the same law we may adduce another fact well known to medical persons, which is the extraordinary tendencies to propagation evinced by both sexes when semi-convalescent, after enfeebling and attenuating epidemics, such as fevers, pestilences and plagues; and the consequent extraordinary rapidity with which population recovers itself in those countries where the plague, the marsh fever, or famines, which cause many of these epidemics, have made havoc.

A general glance at the map of the world, with a general statistical account, will show results corresponding with this law. Thus, in Russia, where butchers' meat is a drug, and vegetable food a luxury, the numbers to the square league are trifling.

In Poland, France, Italy, and the Low Countries, where the diet is mixed, but plentiful, population is moderately dense.

In India, in Ireland, and in China, where no animal food almost is eaten, where the vine and the olive are absent, and where oil and wine of course do not make part of the popular diet, the population is excessively dense, and constant pauperism and periodical famines form decided features in the history of these countries.

Amongst other writers, Sismondi clearly recognizes the fact that poverty and numbers go hand in hand, whilst prosperity and solid living invariably check fecundity. In his "Essays on Political Economy," vol. i, page 90, he thus observes:—"The slowness in the increase of a population is most frequently (le plus souvent) an indicator of great prosperity. And this is the more remarkable, because amongst a prosperous population the average duration of life is largest, and there is no check (founded upon prudential considerations) on the number of marriages. Yet here we shall find that the number of deaths approaches the most nearly to an equality with that of births."

He then mentions Geneva as an instance of this prosperity, and says that "in that city the number of births to a marriage is rather less than *three*, *two* of whom replace the father and mother: and the other *one* (or rather *minus*—1) represents those who do not reach the age of marriage, or who die in celibacy." He adds, "There is no danger here of that subdivision of property with which we are constantly menaced by the English economists."

The next instance is one of an exactly opposite character, relating to Ireland.

"This rapid increase of population (says Sismondi) is almost always a sign of distress, not of prosperity. It shows that the Proletaire, incapable of calculating his resources, or those of his family, is governed only by his animal propensities, and is without either hope or fear of the future. The effect of this *abrutissement* of the Irish has given an impulse to the population of their country which is without a parallel elsewhere. In 1836, the *Examiner* newspaper thus states the census of three different periods:

		PROTESTANTS.
Total population in 1766 . . .	1,871,725	544,865
Ditto 1822 . . .	6,800,000	980,000
Ditto 1834 . . .	7,943,940	752,972

"The proletaires are almost all Catholics."—*Sismondi, Essays*, vol i. p. 241.

In this statement, copied from the *Examiner*, there is a great error. We shall see, when we glance at the statistics of Ireland, that, in 1767, the hearth-money collectors computed the Irish population at 2,544,276.

Upon what evidence the proportion of Protestants, at different periods, is stated, does not appear; but such statements seem to the author to be unworthy of much credit. It has ever been the aim of the Irish Protestants to swell the amount of their numbers; whilst the Catholic writers

have as studiously under-rated them. It seems tolerably clear upon the whole, however, that after 1640, owing to the severe treatment which the Irish Catholics experienced, and the efforts of Cromwell and the Puritans to colonize Ireland with British Presbyterians, the relative number of Protestants to Catholics must have been greater than at any other time. Had the Protestants then increased by procreation at the same rate with the Catholics, this relation must have been preserved, or nearly so. All the evidence which we have does not, however, tend this way, but the contrary. When the aggregate Irish population was known to be *eight millions*, the Protestants never claimed more than *one and a half million*, or a fifth, whilst the Catholics stated them at *one million* only, or *one-eighth!* Upon the general view, then, it must be decided that the Catholics have increased much faster than the Protestants. Nor is this to be wondered at upon the theory now laid down. The fee-simple of the land of Ireland is mostly in Protestant hands. They are a favoured class, and have possession of a monopoly of lucrative employments; their treatment has been totally different. The Protestant tenant is favoured by his landlord, who is sure to be Protestant; the Protestant

tradesman has the exclusive custom of the rich ; and, in addition, the Protestants enjoy exclusively all the tithes and Church lands of Ireland, whilst the Catholic *proletaire* diminishes his miserable pittance to divide it with his priest.

In these facts is to be found the explanation of the different rate of increase of the two classes of Religionists.

It is not, however, by mere general views like these that this nice and most important question can be decided ; it must be made minutely and particularly the subject of examination; it must be shown to be true as regards countries and their population, taking each separately, country by country.

Where different provinces of the same country differ from each other as to population, it must be shown to be in accordance with this law. Where different bodies of men in the same community retrograde, are stationary, or increase in numbers, the same must be proved with regard to such bodies ; for it is only by being borne out and proved to be true, under all these various modifications of society, that the existence of a law which is not only general but invariable, can be satisfactorily proved and demonstrated. To commence this proof shall be the business of the next chapter.

CHAPTER IV.

THE LAW OF INCREASE AND DECREASE, AS AMONGST LIMITED BODIES OF MEN, EXEMPLIFIED.

LOOKING at bodies of men, one of the most striking facts of all history is the decay to which all systems of nobility, however widely extended these privileges may have been, seem to be subjected. "OLD families (says that most erudite and curious of all observers, Sir Thomas Browne, in his 'Hydriotaphia') last not *three oaks!*" Nothing can be more true.

Let us take as an instance the Peers and Baronets of Great Britain, and nothing can be more striking than the perpetual decay of a body of men, who, possessing large estates and privileges of the most enviable nature, have had apparently every means as well as every motive

to transmit these desirable possessions to lineal heirs. The pride of name, the pride of dominion, the pride of power, all seem to secure the certainty of such transmission; and yet what has been the reality? This it has been—that the Peerage of England, instead of being old, is recent, and the Baronetage, though comparatively of modern origin, equally so. In short, that few, if any, of the Norman nobility, and almost as few of the original baronets' families of King James the First, exist at this moment; and that, but for perpetual creations, both orders must have been all but extinct. The following table shows that the great majority of the House of Peers has been created since the year 1760; that is to say, within eighty years of the present time, and since the commencement of the reign of George the Third, whose accession was in the October of that year; a period within the memory of many now living:—

The number of Peers in 1837.		*Number created since* 1760.	
Dukes	21	5	Dukes
Marquises	19	18	Marquises
Earls	108	58	Earls
Viscounts	17	13	Viscounts
Barons	185	153	Barons
	350	247	
Scottish Peers 16 Irish Peers 28	44	25	
Total	394	272	Total since 1760

Thus it appears that, within the memory of man, 272 of the 394 Peers of Parliament in 1837, have been created. The decay of the order of Baronets has been, perhaps, still more rapid and extraordinary. The order itself was commenced only in 1611, by King James the First, as a means of raising money, principally for the Irish War of that period.

It was suggested as a cheap mode of raising supplies, by the celebrated Lord Bacon, one of whose name was in the original Baronetage, and is one of the few of those originally created, whose descendants remain. The sum paid for this honour was very large, and it is therefore certain that the earlier Baronets were all wealthy men and of great estate. The results are as follows :—

Since the creation of the order of Baronets, in 1611, seven hundred and fifty-three Baronetcies have become extinct. In short, the number of extinct Baronets are more, *in toto*, than the existing Baronets, up to the year 1819, when the Baronets were six hundred and thirty-five only.

From 1611 to 1819, one hundred and thirty-nine Baronets had been raised to the Peerage, and thus taken out of the list of Baronets. Still, supposing all these Peerages to be now

existing, which is not the case, this would only make the whole number, including those made Peers, seven hundred and seventy-four; that is to say, the living Baronets and Baronet Peers would, in that case, only exceed the extinct Baronets by *twenty-one!* Thus it is evident, that but for perpetual new creations, we should hardly have had a Baronet existing. Of James the First's creation, in A.D. 1611, only *thirteen* families now remain. Of all he created up to 1625, the year of his death, *thirty-nine* only remain; a decay certainly extraordinary, and not to be accounted for upon the ordinary ideas of mortality and power of increase amongst mankind.

The author is not unaware that in the cases above quoted, there arise out of the nature of the institutions themselves, causes of extinction which do not apply to a population, or to society in general. A single failure of offspring makes a gap in *the body*, whilst even *extra* fecundity in another quarter is only allowed to keep up *the line*. For instance, Lord S., or Sir John S., dies childless: Lord R., or Sir John R., supplies a dozen or fourteen descendants. One would have sufficed to fill the place, and we cannot make use of the surplus to supply other deficiencies. This

is clearly enough one cause of the extinction of titles, which, where there are many sons, is conferred upon one alone, but which is lost in case of failure of heirs. But this one cause will not account for the rapid and perpetual decay of nobility as exhibited, not only in the English Peerage and Baronetage, but amongst the nobility and higher orders of other countries, both ancient and modern, where the cause above alluded to does not exist.

We have the testimony of Addison (who quotes Amelot) as to the extraordinary decrease of the Venetian nobility, although *all* the sons are ennobled by birth. Chastellux and Heylin say the same of the French and Netherlandish Noblesse. Mr. Malthus himself also bears witness to the strange decrease of the bourgeoisie, or wealthy class, of the town of Berne; although the fact is strongly opposed to his preconceived opinions. Addison's remarks, as repeated in the work of the late Michael Thomas Sadler on this subject, are as follows: "Amelot reckoned in his time 2500 nobles that had voices in the Council; but at present I am told there are not at most 1500, notwithstanding the addition of many new families since that time. It is *very strange*, that with this advantage, they are not able to keep up their numbers, *considering that*

the nobility spreads equally through all the brothers, and that so *very few* are destroyed by the wars of the Republic."

Mr. Malthus, at page 278 of his "Essay on Population," gives the following statement as to the town of Berne: "From the year 1583 to 1654, the Sovereign Council admitted into the bourgeoisie 487 families, of which 379 became extinct in the space of two centuries, and in 1783, only 108 of them remained! During the *hundred* years from 1684 to 1784, *two hundred and seven* Bernoise families became extinct. From 1624 to 1712, the bourgeoisie was given to eighty families; in 1623, the Sovereign Council united the numbers of one hundred and twelve different families, of which *fifty-eight* only remain." From these facts, it is apparent that the law of decrease is not only active amongst those included under the title of nobility, but amongst any class of men, however entitled, to whom the means of full and generous living are not denied; the bourgeoisie of the comparatively poor and republican town of Berne being no more proof against it than the high-blooded nobles of Italy and France. The evidence of Tacitus, however, as to the certain and wonderful activity of this principle of decay, amongst those to whom is allotted the pride of place, is perhaps

the most extraordinary. Under the Emperor Claudius, it seems to have been necessary, by an admission of the best families, who were not actually patrician, to renovate this powerful class; and this is the historian's brief but most instructive account of this matter: "Iisdem diebus in numerum Patriciorum adscivit Cæsar vetustissimum quemque e Senatu, aut quibus clari parentes fuerant. Paucis jam reliquis familiarum quas Romulus Majorum, et Lucius Brutus Minorum Gentium, appellaverat: exhaustis etiam quas Dictator Cæsar Lege Cassia, et Princeps Augustus Lege Sænia, sublegere."—*Annal.*, lib. xi, cap. xxv.

"About the same time Claudius enrolled in the Patrician order such of the ancient senators as stood recommended by their illustrious birth and the merit of their ancestors. The line of those families which were styled by Romulus 'the first class of nobility,' and by Brutus 'the second,' was almost extinct. Even those of more recent date, created in the time of Julius Cæsar by the Cassian law, and under Augustus by the Sænian, were well-nigh exhausted."—*Murphy's Translation.*

In his translation of this extraordinary account, Murphy has softened the directness of Tacitus. There is nothing in the original to answer to the

words "*well-nigh* exhausted" in the last sentence. Tacitus says, in plain terms, that "even the Patrician families created by the Dictator Cæsar, and by Augustus, *were* exhausted;" meaning of course, not *extinct absolutely*, but exhausted for all the purposes for which they were created into a class. This is an instance of Patrician decay exceeding those of modern times.

That the nobility of Romulus and Brutus should in Claudius Cæsar's time have been worn out, is hardly to be wondered at; but that the new creations of the Dictator Julius, and his nephew Augustus, should also have perished, is a striking event. Supposing even their numbers comparatively few, it is still a startling fact, that in *less than a century* few of these families should remain. Yet such is Tacitus' assertion; for, between the assumption of Dictatorship by Julius Cæsar and this period of the reign of Claudius, ninety-two years only elapsed. Mr. Alison, in his History of Europe, states that, in Egypt, the same decrease of numbers was observable in the Mamelukes, who only kept up their strength by accessions from other sources; and it is generally supposed by travellers that the true Turks are rapidly decreasing, in consequence no doubt of sloth and luxury. Their soldiery are now principally Albanians.

The instances already quoted will have given the reader reason to think that, not only amongst those classes of men styled nobility, but even amongst classes not ennobled by name, but enabled by fortune to imitate the full and luxurious habits of noblemen, the law of decrease is strongly developed. This law of plethoric decrease, however, does not stop here. As it descends, it certainly mitigates. What was plague under the Line and between the Tropics, becomes malignant fever in more temperate climates; mitigates again into typhus as the cold increases, and disappears altogether beyond the Arctic and Antarctic Circles. Such is precisely the course of the principle of decrease. As men become lower in circumstances, it diminishes; lower again, it becomes nothing, until *privation* comes, and then *the opposite principle* immediately appears, and goes on growing in intensity, in the ratio of privation and consequent depletion and debility, in all their varied forms of weakened and attenuated constitutions.

As a proof of the prevalence of this principle of decrease amongst a class of men, lower in society than those already mentioned, but still well able by circumstances to induce the plethoric or non-increasing state of constitution, the author will now adduce some facts derived from

the archives of a more humble *privileged class of men—the free burgesses* of certain rich and exclusive boroughs. The first example he will take from the rich and ancient borough, within the precincts of which he is now writing, and of whose corporate governing body he was recently a member. He will instance the free burgesses of Newcastle-upon-Tyne. In doing this it is, in commencement, proper to state that the corporation of Newcastle-upon-Tyne is, and has been for centuries, one of the richest incorporations of this or any other country. Of this wealth its burgesses of all ranks have, more or less, shared the benefits. Up to about the year 1760, the freemen or free burgesses enjoyed a complete and close monopoly of the trade of the town of Newcastle. With the exception of a small space called "the Castle-yard, or Garth," which, by a fiction of law, is supposed to be part and parcel of the neighbouring county of Northumberland, in order that the county assizes may be held there, no person, not free of the borough, was permitted to open a shop within its boundaries or liberties. Free artizans also exclusively enjoyed the privilege of being employed, at liberal wages, in all the operative business of this wealthy corporation. There were, and are, well-endowed hospitals for decayed freemen or their widows.

They possessed the depasturage of extensive and fine grazing grounds of many hundreds of acres. They had a complete monopoly of the carriage of goods from the quay, which was vested in an incorporate company of "Free Porters," who were paid extravagant rates of carriage. As they enjoyed the exclusive privilege of electing members of Parliament, they also had a sort of patent for all local government-offices, for which members of Parliament recommend candidates. There is also an endowment for lending young tradesmen money, on bonded security, to assist their business, the benefits of which they enjoyed exclusively; and lastly, they were constant and welcome guests at all treats, feasts, and entertainments given at a Mansion House, kept always open for such visitors, at an enormous expense.

Beyond all this, they had beneficial grants of quays for the deposit of ballast, from which both the corporation and the depositors reaped handsome revenues; and the maritime part of their population also derived solid advantages from an endowed establishment called the Trinity House, where an endowed school for maritime purposes is provided. There are also other endowed schools for general education, gratis, for the children of free burgesses.

Surrounded with such advantages, it required

an unusual strain of imprudence indeed to prevent a Newcastle free burgess from doing well in worldly matters; and the body as a consequence were generally wealthy men in their different stations in society. That these enviable distinctions were carefully guarded from competitors need not be doubted. The freedom of the town was never sold, nor ever given, except as an honour to some few distinguished or illustrious strangers. There were only two ways of acquiring the franchise, viz., by inheritance or by servitude. *Every son of a free burgess was free;* but if the father had not paid the necessary fees, and formally assumed the franchise, this barred the son, although the grandfather had been free. The servitude was a *bona fide* apprenticeship to a freeman of *seven* years; and this was most scrupulously insisted upon.

Under all these favourable circumstances, *all the sons of a free burgess being free,* it might be expected that they should go on rapidly increasing their numbers. With them the usual bar to marriage, poverty, was out of the question; and their monopoly of trade directly encouraged an early settlement in life. The contrary, however, has indubitably been the case; up to the time when they lost their trading monopoly, they seem hardly to have maintained their numbers; and

there is good reason for supposing they might even have decreased, had it not been for the aid of those who became free by servitude; which last seem to have probably *exceeded* in number those who acquired it by inheritance.

Since the loss of their exclusive privileges as to trade, the increase has been unquestionably greater; but the whole history of this body of men exemplifies, in a very extraordinary manner, the difficulty with which a well-fed community maintains its numerical strength.

The first table is a statement of the numbers of claimants of the franchise for five years, distinguishing the claimants by *birth* from those by *servitude*. The latter, it will be seen, still predominate. The next table is the polls of all the contested elections from A.D. 1710, inclusive, up to the passing of the Reform Bill in 1832. This table proves that the number of freemen at the period of the great contest of A.D. 1722 was nearly the same as the number existing at the periods of the subsequent contests, in 1841, 1774, 1777, and 1780. These tables are certainly correct, and were kindly extracted and calculated from the books of the Stewards of the Incorporated Companies by their excellent Secretary, John Brown, Esq., at the request of the author.

TABLE I.

CLAIMED THE FREEDOM OF NEWCASTLE-UPON-TYNE.

Years.	By Birth.	By Servitude.	Total.
1832	43 Claimed.	83 Claimed.	
1833	40 . .	57 . .	
1834	47 . .	63 . .	
1835	86 . .	88 , .	
1836	31 . .	59 . .	
	247	350	597 Claimants.

Of this table Mr. Brown remarks—"311 persons only were *admitted.* I do not know the proportion of the parties admitted by birth or servitude, but conclude they are in the same ratio as the claimants." Thus, then, it is probable that the additions to the burgess-roll by servitude *have more than kept pace* with those by birth. The principal cause of the non-admissions is unwillingness, or else inability, to pay the fees. These amount to a heavy sum for a young man in narrow circumstances. This obstacle, however, generally disappears before contested elections, when those whose claims are valid become all at once possessed of the means of assuming the franchise, or, as it is called, "taking up their freedom!"

TABLE II.

NUMBERS OF VOTES POLLED AT THE CONTESTED ELECTIONS FOR NEWCASTLE-UPON-TYNE.

Years.	Votes.		
1710	Sir William Blackett Mr. Wrightsen Mr. W. Carr	1177 886 609	Two days only. 1700 voters probably.
1715	Sir William Blackett Mr. Wrightsen Mr. Clavering	639 550 263	No time given.
1722	Mr. W. Carr Sir William Blackett Mr. Wrightsen	1234 1158 831	2000 voters probably.
1727	Sir William Blackett Mr. N. Penwick Mr. Carr	1202 1189 620	Three days. 2000 voters probably.
1734	Mr. Walter Blackett Mr. N. Fenwick Mr. W. Carr	1354 1083 716	Eight days. 1795 voters.
1741	Sir Walter Blackett Mr. N. Fenwick Mr. Matthew Ridley Mr. Wm. Carr	1453 1231 1131 683	A great contest. Six days. 2391 voters.
1744	Sir Walter Blackett Sir Matthew Ridley Captain Phipps Mr. Delaval	1432 1411 795 677	A great contest. 2162 voters.
1777	Sir John Trevelyan A. R. Stoney Bowes	1163 1068	2231 voters.
1780	Sir Matthew Ridley A. R. Stoney Bowes Mr. Delaval	1408 1135 1085	2245 voters.
1820	Sir Matt. Ridley Mr. Ellison Hon. Mr. Scott	particulars wanting	A single day. 800 voters.

In 1832, the number of freemen resident within seven miles of Newcastle was 1619 only.—*(Mr. Brown's note.)*

From these results it is evident that, although it is certain that the population of Newcastle-upon-Tyne has been steadily, and of late even rapidly increasing, as may be proved by the results of the different enumerations, as well as by the greatly augmented amount of Custom-house receipts, yet the freemen, or free burgesses, despite the aid of those acquiring freedom by servitude, have not materially helped that increase.

It also singularly coincides with the law of increase here attempted to be demonstrated, that such material increase of numbers as has taken place in the body of free burgesses, has occurred since the loss of their exclusive trading privileges, and the consequent diminution of the fulness of their means of living, by an influx of active competitors.

The positive conclusions which the author has drawn from the foregoing results, he has not drawn without being well aware that they are liable to certain objections ; inasmuch as, besides probable modes of living, there are other accidental circumstances likely to diminish and keep down the number upon the burgess-roll, and to affect in other ways the validity of the strong conclusions come to. These objections he cannot

state better than by quoting the statement of them made to him by one most eminently qualified to inquire into such evidence; that is to say, the talented Town Clerk of the Borough, John Clayton, Esq., who was at the kind pains to consider and sift much of that portion of the documentary testimony upon which this theory is founded. The following are Mr. Clayton's remarks as to this portion of the argument :—

"Newcastle, Sept. 3, 1837.

"The conclusions which you draw from the "past and present state of the body of freemen "are open to some observations. I believe it to "be quite true, that during the last century "there was very little increase in the number of "that privileged class. But it must be borne "in mind that during the same period the "freemen were subjected to the severe check "of the loss of their privilege of exclusive "trading, and became a minority of the inhabi-"tants of the town, instead of being, as they "were, at the commencement of the last cen-"tury, almost its sole inhabitants. It will "be found, I think, also that the town itself "was not nearly so much extended during the "whole of last century, as it has been during "thirty-six years of this.

"In the year 1734, the whole number of free-
" men polled at a contest, which drew together
" the non-resident as well as the resident freemen
" did not exceed *eighteen hundred.* At present,
" (1837) the number of registered freemen, resi-
" dent within seven miles of the borough, exceeds
" eighteen hundred; and the non-resident, I
" calculate, may be nearly equal in number.
" There are also circumstances to be considered
" which prevent this class having the full benefit
" of the fecundity of the species. In the first
" place, females and their descendants do not
" assist us in keeping up *our* number (I speak in
" the first person, as one of the body); and in
" the next place, the rule (correctly stated in
" your letter) by which the franchise is lost to
" the children if the father omits the ceremony
" of admission, operates very greatly as a check
" to our increase. I will put a case, within my
" knowledge, and not an extreme case, which
" will show the practical working of this rule.
" A. B., a freeman, dies, leaving three sons. The
" eldest remains in this country and dies, leaving
" an only son, whom we retain as a freeman.
" The two younger sons do not take up their
" freedom at all. One of them goes abroad and
" dies, leaving five sons. The other enters the

" army, and finally settles in a distant part of " the country, where he leaves four sons. Thus, " if we had the full benefit of the *natural* increase " of the species, we should have had *ten* freemen " in the place of A. B., the grandfather. Now, " through the operation of our artificial restric- " tion, we have only *one!* According to the " statement supplied to you, which I believe to " be correct, our gain by apprenticeship is " counterbalanced by the loss we suffer from " inability or disinclination of claimants to take " up the freedom, notwithstanding the generous " aid afforded them by candidates for their suf- " frages at elections."

The objections which are embodied in these, at first sight striking and apposite comments, seem to the author to admit of satisfactory solution. That the loss of the female line must affect the *actual* numbers of the class of free burgesses most materially is evident enough. In short, the probable loss must be nearly one half; inasmuch as in an extended population the number of females born nearly equals that of males. But this effect upon actual number has nothing to do with *ratio of increase.* There is no reason adduced for supposing that if the franchise had been conferred

upon females also, and their descendants, and if such females, by marrying, conferred upon their husbands and families the same advantages and fruits of privilege and property, which freemen do upon their wives and families, that their fecundity would have been greater, or at all different, their circumstances of living being supposed to be the same.

If increase there was, then the *ratio* would have been *the same*, though the *numbers* would have been *greater*. The start would indeed be made with *double the number;* but there is nothing to show why the *ratio of prolificness* should be increased. That objection which accounts for the want of increase, by supposing that the loss caused by omission to take up the franchise counterbalances the gain arising from admissions earned by servitude, is less easy to parry. That much loss may be and often is so caused, cannot be denied. The answer is, that upon the whole statement this loss is evidently insufficient to account for the *whole failure* of increase, though it may account for *part of it.*

It is shown on all the statements, that during the early part of the last century the increase was trifling, and that after the loss of the trading monopoly, about 1760, up to the present time, the

increase has been more. Now had omission of taking up freedom been the check, the direct contrary must have been the case, because the means of paying the fees must have been diminished—first by the lessened means; next, by the want of contested elections, of which there were none from 1780 up to 1832, save the two days of 1820, and because the motives for emigrating must have increased; and therefore *this* check of omission must have been rendered *more stringent*, and of augmented efficacy after 1760. The event of the admitted increase *since* 1760, however, contradicts this; and it follows that there must have been *some* OTHER CHECK *removed of more efficacy than the omission to claim;* inasmuch as the effect of *its removal* has been totally to overcome and neutralize the increased stringency of the other, as is proved by the growth of the burgess population during the last-named period. The cause of that effect, the author asserts, was the *poverty* created by the loss of the exclusive privileges; the "severe check" to the prosperity having an inverted effect upon the prolificness of the burgesses; or, in other words, the check to the prolificness of the burgesses; or, in other words, the check to the accumulation of wealth, being the re-

moval of a check, or rather a positive stimulus to increased population. In order, however, to put this probable truth in a still clearer and more indisputable point of view, the author will instance the facts as to the increase of another body of freemen, obtaining their franchise in the same way as those of Newcastle-upon-Tyne, but not possessed of lucrative privileges like those of the latter, the burgesses of Berwick-upon-Tweed.

These facts were obtained through the instrumentality of the kind friend, whose assistance has been already alluded to, and they may be entirely depended upon. The freedom of the borough of Berwick, it has already been remarked, is obtained upon the same conditions, or as nearly so as possible, as those upon which depends the franchise of Newcastle—inheritance or servitude. The property and emoluments of the Mayor and Burgesses derived from the incorporation are trifling, however; and the freemen of Berwick, compared with those of Newcastle, are a comparatively poor class of men.

Here, then, are two bodies of men, selected in the same manner, under the same artificial circumstances, differing only in point of wealth and endowments. Amongst these men the inability to take up the freedom must be as great as

amongst the Newcastle claimants, because they are less wealthy.

The indifference about it must be greater, because it confers no lucrative privileges, except as far as the sale of votes for Members of Parliament may be occasionally lucrative to the corrupt voter. The tendency to emigrate must also be fully equal to the tendency in the former place. Yet what is the result, on a comparison of facts? That the free burgesses of Berwick have increased during the last century in a ratio far beyond that of the increase of the Newcastle free burgesses—an effect only to be accounted for in the fact of their greater comparative poverty. The results for the last century, and the ratio of claims by birth or servitude, are as follow :—

TABLE I.

NUMBER OF CLAIMANTS OF THE FRANCHISE OF BERWICK-ON-TWEED.

From 1829 to 1836	By Birth.	Servitude.	Admitted by Ticket.	Total.
	123	29	5	157

TABLE II.

COMPARATIVE NUMBERS OF FREEMEN AFTER A CENTURY.

Year.	No. of Burgesses.	
1737	583	No division into resident and non-resident.
1837	1,116	Of these 450 were resident, 666 non-resident.

TABLE III.

NUMBERS POLLED IN RECENT ELECTIONS.

1831 ..	.. 366 polled (before the Reform Bill).
1837 ..	.. 393 polled (after the Reform Bill).

Thus it appears that the freemen of Berwick-upon-Tweed have all but doubled their number in the course of the last hundred years, from 1737 to 1837; that the tendency to emigrate is greater here than in Newcastle, inasmuch as the non-residents much exceed the residents in 1837; and lastly, that during the last six years their numbers must have increased considerably, inasmuch as some of the 366 polled in 1831 were probably non-residents; whereas, all the 393 polled in 1837 must have been residents within seven miles.

If we extend our examination to other corporate bodies in various parts of the kingdom, the same tendency to diminution and decay of the numbers of the privileged classes, seems, more or less, to pervade them all. The various ways in which the franchise descends, or is acquired, of course varies the results; but the general bearing and tendency are one and the same. Thus, in the City of Durham the freedom is acquired

by apprenticeship, in the same manner as it is in Newcastle-upon-Tyne and in Berwick-upon-Tweed, but the hereditary descent is more limited. The franchise is enjoyed only by the eldest son of a free burgess of Durham, save and except in the United Company of Grocers and Mercers, where all the sons inherit. This company being composed generally of men with some capital, if the theory now advocated be true, would certainly require some extra aid to keep their guildry in existence, and this it appears they have required. The result of an inquiry into the numbers of the freemen of Durham, shows that for some generations a diminution has been for the most part going on, though the admissions by servitude are numerous. The diminution of their numbers has, however, been less than the limitation of the inheritance would have led a hasty inquirer to expect. When we find, however, as is the case, that the mass of the free burgesses here are generally much poorer than are those of the boroughs already alluded to, the apparent anomaly is accounted for.

In the year 1678, was the first election for Members of Parliament for this city, when *eight hundred and thirty-eight voters polled.* Between

this time and 1761, there was probably a small decrease in their number, for though *one thousand and fifty persons voted as freemen*, yet *two hundred and sixty-four* of these were created for the occasion, under a by-law afterwards set aside. This reduces the actual number of free burgesses to *seven hundred and eighty-eight*, a diminution of the numbers in the election of 1678. In the year 1802 (a violent contest), a small increase seems to have existed, as *nine hundred and eighty-two* are stated to have polled. Since then they have decreased, the number resident within seven miles at this time (1841) being calculated at *four hundred and fifty only;* the probable non-residents are about *two hundred.* What is a very striking fact, is, that the United Mercers and Grocers' Company, in which alone ALL THE SONS inherit the franchise, comprises only THIRTEEN individuals, the numbers being kept up by the poorer companies. The average of admissions to the franchise of late years is twenty-nine. Thus, in fifteen years, a number equal to the present total number of resident burgesses has been admitted; and yet the numbers, on the whole, decrease.

In the borough of Richmond, in Yorkshire, the franchise descends, as at Durham, through

the eldest son alone. *Women* could, however, acquire the freedom by servitude, and *their* apprentices acquired the franchise. It does not appear, however, distinctly that their sons inherited, though probably this was the case. In the year 1713, the number of free persons of Richmond was *three hundred and fifty-nine*, as was proved by the election of a mayor at that period, which was bitterly contested. In 1727, however, the burgesses lost their right of voting for Members of Parliament, which was decided by the House of Commons to vest only in the owners of certain "burgage houses." Half a century after this, also, the trade of the town was taken out of the monopoly of the burgesses. From this the admissions by servitude declined; and so rapid was the decay, that in A.D. 1820 the number of burgesses of Richmond was only *eighty!*

In the city of Carlisle the franchise is inherited by all the sons, and acquired by servitude. The number of the burgesses is, however, not very different from what it was a century ago, notwithstanding constant and numerous admissions by servitude; nor is it a rich corporation.

The following comparative returns, which are compiled from the election returns of various boroughs, will exhibit the same principle, and

help to prove that wherever bodies of men are so placed in life as to live solidly, and without severe labour, their numbers are either stationary, or else actually diminish.

BOSTON, LINCOLNSHIRE.

1796	Thomas Lydel	290	1831	G. J. Heathcote	265
	Lord Melsington	251		J. Wilks	249
	Samuel Barnard	95		N. Malcolm	51

COLCHESTER, ESSEX.

1741	Charles Gray	832	1830	Daniel W. Harvey	651
	S. Saville	807		A Spottiswoode	572
	John Olmius	806		Wilke Mayhew	304
	M. Martin	799			

EXETER, DEVON.

1790	James Buller	1106	1831	J. W. Bullen	753
	John Baring	588		J. W. Buck	548
	Sir C. W. Bampfylde	550		E. Divett	379

MAIDSTONE, KENT.

1784	C. Taylor	406	1831	A. W. Robarts	470
	G. N. Edwards	373		H. Winchester	387
	William Geary	324		— Rawlins	156
				— Tyssen	156

ROCHESTER, KENT.

1790	George Best	369	1830	Ralph Bernal	384
	S. R. Bickerton	322		John Mills	354
	Marquis Tichfield	243		J. Collingwood	293

NOTTINGHAM.

1796	Lord Carrington	1211	1830	Sir Thomas Denman	1206
	D. P. Coke	1070		Sir Ronald Ferguson	1180
	Dr. Crompton	560		Thomas Basley	226

LIVERPOOL, LANCASHIRE.

1784	Thomas Brereton	1076	1831	William Ewart	1919
	Richard Geldart	1030		J. E. Denison	1890
	Thomas Bootle	990		General Gascoigne	607
	Sir Edward Cunliffe	941			

NORWICH, NORFOLK.

1784	Sir H. Harbord	2305	1830	R. H. Gurney	2363
	William Wyndham	1297		R. Grant	2227
	H. Hobart	1233		Jonathan Peel	1912
				Sir Charles Ogle	1762

YORK.

1741	E. Thompson . . .	1447	1830	S. A. Bayntun . .	1928
	Godfrey Wentworth	1325		Hon. H. Dundas .	1907
	S. J. L. Kaye . .	1315		Hon. E. R. Petre .	1792
	Sir H. Milner . .	1115			

BRISTOL, GLOUCESTERSHIRE.

1774	H. Cruger . . .	3565	1830	R. Hart Davis . .	5012
	Edward Burke . .	2707		J. E. Baillie . . .	3378
	M. Buckdale . . .	2456		Edward Protheroe .	3030
	Lord Clare . . .	283		J. Williams . . .	2741

These elections being all prior to the Reform Act of 1832, give the numbers of the free burgesses only voting for these towns. In various boroughs the modes of obtaining the borough freedom and franchise vary. In some all the sons of a freeman inherit the paternal privileges; in others, the eldest son only. In some the freedom of the borough is never sold, and rarely given; in others it is more easily obtainable. In the instances given above, those at all conversant with elections of Members of Parliament will perceive that though in some cases nearly a century, in most half a century, intervenes, the number of votes given do not differ materially. In Bristol, alone, any marked increase is observable; and there the franchise is more easy of access than in almost any other borough, being acquired by those who marry the daughters of freemen. As Bristol has rapidly increased in wealth and importance since A.D. 1700, these intermarriages with

strangers may have become more frequent of late years.

This steadiness in the numbers of the free burgesses of corporate towns, is only to be accounted for by the fact that they are generally more or less in possession of advantages denied to the rest of the population. They, in all cases, have a monopoly of government employments. They share in the proceeds of such borough property as the corporation possesses, and they too frequently make a direct profit by means of their votes.

These resources all tend to ward poverty and privation from them as a class, though individual instances occur. Hence, generally living at ease, they not only cease to add to their numbers, but in some instances, as has been shown, would dwindle and become extinct, were it not for the constant additions to their numbers by those who acquire municipal freedom by servitude or purchase.

In the Corporation of London the same phenomenon is very apparent. The increase of the liverymen arises from those who, coming from the provinces, purchase or serve for the freedom of the city, which in the metropolis may be so valuable to the enterprising and ambitious.

Hence most of those who fill high offices under the Corporation of London are provincials by birth, or the sons of aliens; and as they in turn are cut off by luxury, others, following the same course, succeed to their wealth and honours. "During forty years, from 1794 to 1833, the admissions by *patrimony* to the freedom of the Corporation of London, were only 7794 out of a total of 40,221 who were admitted. About one-third were strangers who purchased their freedom; one-half were sons of strangers, who served as apprentices."—*Vide Second Report of Commission of Municipal Enquiry*, 1837, page 65.

Various other bodies of men may be referred to as exhibiting results precisely similar to the foregoing, and amongst these may be instanced the Society of "Friends" or "Quakers," as they were at first derisively, though now familiarly called. This sect is believed to be the most opulent, in proportion to its numbers, of all the bodies of dissenters. It keeps its own poor in so admirable a manner, that a destitute, or even apparently poor Quaker is not to be seen anywhere. In the points of morality and sobriety, the Society of Friends is perhaps unequalled by any other religious body; consequently, the members of this wealthy and exemplary sect

almost universally marry, and marry early. Yet, not having been aided in modern times by conversions to their body from any other divisions of Christians to any great extent, it is believed they have decreased during the last century. They do not, as far as the author's inquiries have gone, possess any means of ascertaining their exact numbers at different periods, but this is their impression: some may deny or doubt the decrease, but none argue for any known or sensible increase of their numbers within memory. Those who marry out of the society are indeed expelled, at least until the stranger's partner conform to the rules of their body; but the loss from such expulsions, and from expulsions for other reasons, is quite insufficient to account for the non-increase of the sect. Free from intemperance of any sort, they afford one of the most striking proofs of the truth of the rule, that with generous and solid living superfluity of numbers is not to be dreaded.

Similar results are observed to occur with the Slave Population of the North American United States. It is there observed that the slaves increase, whilst the emancipated negroes decrease and gradually decay. The first are hard-worked and only moderately fed; the second, destitute

of taste for the most common luxuries, or even comforts of European or civilised life, are enabled, by a little labour, to indulge to the uttermost in the most vulgar sensualities of our nature; and hence the decay of this class which the American writers describe.

Miss Martineau, in her "View of Society in America," bears unconscious witness to this truth. Talking of negro slavery, she says (vol. ii, p. 131): "B—— is confident that the condition of slaves in the United States is *materially improved*, yet believes they will *die out*, and that there will be no earlier catastrophe. This same gentleman told me of a recent visit he had paid to a connection of his own, who had 'a large force,' consisting chiefly of young men and young women: not one child had been born on the estate for three years! This looks very like 'dying out;' but does it go to confirm the materially improved condition of the slaves?"

If there be truth in the theory, here attempted to be demonstrated, it unquestionably does. The author cannot doubt that Miss Martineau's informant was correct in both statements. That the efforts made by the opponents of negro slavery to hold it up to detestation, must have ameliorated the usage of the slaves, is very pro-

bable; and all persons who know intimately the mode in which the negroes are dealt with in the Southern United States, know that their usage is, generally speaking, good, as far as mere animal comforts go. The hours of labour are short compared with those to which we are used in this country, and their food is unquestionably better than that of the families of most British artisans at this moment. Of Indian corn, or the meal made from it, their supply is unlimited. Of esculent vegetables, and of the fruits common in that climate, they also have an *ad libitum* quantity. Their animal food is chiefly pork, fresh or pickled; but this is given them daily, and in no very stinted way; and as each man has a provision-ground of his own besides, he can, in that climate, rear poultry to almost any extent he can desire. That men and women fed in this fashion, and never subjected to hardship, should not be prolific, is not surprising. It is the less so, because the negro slave becomes plethoric much sooner than the free European, or Caucasian rather, and much more easily. He is devoid of care, incapable of deep thinking, and of a cheerful, reckless temper; all of which are favourable to the creation of the state of *plethora* which is the true bar to fecundity.

Having so far elucidated the law of decrease in such bodies of men as are possessed of means to continue that mode of living which tends to produce the *plethoric state*, it will be expected that some illustrations of the opposite tendency, the law of rapid increase, which exists amongst communities ill fed and subjected to those privations which superinduce the law of *decrease*, or *deplethoric state*, should be given.

This is a much less easy task. Bodies of men enjoying ample means are necessarily not very extensive, and are, in a manner, insulated and marked out in society. The poor are scattered over the community, and to their circumstances, and to the effects of these circumstances on their fecundity, general references are much more easy than particular instances. Such references have already been given. The Scottish Highlands, and all Ireland, afford striking proofs of this truth. The numbers of children in maritime villages, where fish is the principal food, have been adverted to by political economists, and attempted to be explained upon their principles—the cheapness and plenty of fish being set down for the causes. No people, however, are poorer than the inhabitants of fishing villages, and it would be easy to prove that they have by no

means a constant plenty even of the edible in which they deal. It is poverty, and not plenty, that stimulates their growth. The surprise of travellers, who have been accustomed to thinly peopled countries, such as Russia and most of her tributary pastoral kingdoms, at the swarms of children in all the *poorer parts* of our cities and towns, is another striking proof of this. Dr. Hamel, who travelled over England at the expense of the Russian Government, but who was, however, a German by birth, strongly expressed his astonishment at the difference, for which he could not account. The history of the world, however, is not without insulated instances of the truth of this law of increase. The most extraordinary and striking on record is, perhaps, to be found in the History of the Mutineer Colony, on the desolate island of Pitcairn, in the Pacific Ocean, about fifty years ago. This singular colony arose out of the mutiny against Captain Bligh, the commander of the Bounty, on what was called the Bread Fruit Tree expedition. The ringleader of the mutineers, Fletcher Christian, seems to have settled upon Pitcairn's Island, after leaving most of his companions at the Island of Otaheite, about the year 1790. The first account of the existence of the colony

is afforded by Lieutenant Shillibeer, of the Briton, who was there about the year 1814. Christian seems to have landed on the island with nine Europeans, six men of Otaheite, and eleven Otaheitan women. One of the women, Christian's wife, died soon after their arrival, and Christian having appropriated to himself the wife of one of the Otaheitans, was shot by him in revenge, together with two other Englishmen. This led to the murder of all the Otaheitan males, so that the colony was at once reduced to sixteen adult persons in all; that is to say, six male Europeans and ten Otaheitan females. This number was afterwards lessened to fifteen adults by the fall of one of the men from a cliff. When visited by Shillibeer, they had increased their numbers to forty-eight, and this was at most only twenty-four years after their reaching the island. During this period, then, they had *tripled* their population, and subsequent accounts seem to confirm the fact of this rapid increase having continued, it having been ascertained recently that the numbers upon the island had reached the extraordinary height of one hundred and eighty persons. Adams, one of the mutineers, was still living, at the age of eighty. Thus, in about forty years, or a little more, this

extraordinary colony seems to have decupled its population—a rapidity of increase probably hardly paralleled in the annals of the world. Let us now inquire into their mode of living, and in that mode will be found the true solution of this extraordinary fecundity. The Island of Pitcairn, when they landed upon it, seems to have been almost devoid of the means of sustaining life, being destitute of trees bearing edible fruit, and of succulent vegetables. "The Bread Fruit and Cocoa-nut trees (says Lieutenant Shillibeer) were brought with them in the Bounty, and have since been reared with great success." Their agriculture he describes as being confined to the *cultivation of the yam*, which they had brought to *extraordinary perfection*. Of grain they were altogether destitute. They had some poultry, and the few goats and pigs on the island were neglected, and running wild in the woods. Beyond the cultivation of the yam, the principal business of these colonists is the pursuit of *fish*, with which the coast abounds. It is, however, every way bounded with rocks, so that they are at all times obliged to carry their little boats to the village. Their light clothing was made from the bark of a tree. Here, then, we have a bird's-eye view of a mode of living, singularly adapted to

fecundity, forced upon a limited population, and its effects. Until their fruit trees grew, which would not be for some years, fish, yams, and the eggs of their few poultry, and of wild birds, must have been their sole subsistence. This, probably, together with the heat of the climate, was the foundation of the taste for the species of diet which has prevailed. There were, it is stated, a few wild rabbits on the island, but they had *not domesticated any.*

Thus, then, these islanders afford a proof at how fearful a rate population will increase amongst a people obtaining their food only by constant exertion, that food being nearly altogether fish and vegetables, and the people being destitute entirely of grain of any sort, and also of the grape, and consequently ignorant of the pernicious habit of indulging excessively in the use of fermented or distilled liquors. To account for the growth of this colony in any other way, seems to the author to be out of the question. To attribute it to *abundant food* seems perfectly absurd; for this is to assert that these poor people, whose only subsistence must frequently have been the yam, and whose only drink is water, or the milk of the cocoa-nut, lived more luxuriously, or better, not only than the free burgesses of

Newcastle, but also than the nobility of Venice and England or the magnates of Geneva! To find anything resembling it, we must resort to communities living in a manner somewhat similar. On the coasts of Ireland and amongst the Highlanders of Scotland, there can be no doubt that particular spots might be found where the increase of the people, and the number of children compared to the adults, would show a very high ratio. A part of the result at Pitcairn's Island, however, must be doubtless attributed to the remote situation and great salubrity of the climate and of the place, which seems to have given to the inhabitants an immunity from those infectious and epidemic diseases to which the poor of other countries are so peculiarly and fatally liable. It must also be remembered that the colonists of Pitcairn's Island were never actually thinned by *direct famine*, as the thickly peopled countries always are; a truth to which the annals of China, Hindostan, Ireland, and the Scotch Islands bear horrible testimony. Another less well-authenticated instance of increase, under somewhat similar circumstances, is to be found in the historical tradition of the Catheran, Sawney or Donald Bane or Bean. This man is recorded to have lived about the year

1600, in the reign of James the Sixth, of Scotland (our James the First), on the coast of Galloway. Immured, for the sake of concealment, in an immense cavern, this man is supposed to have carried on the trade of freebooter for a series of twenty-five years; and (if the legends as to his life are to be believed) to have lived, in some part, upon the flesh of his murdered victims. That he and his family should, at times, have been driven by famine to such a resource is not incredible; but that he should have preferred this mode of sustenance is clearly a feature of the story which the atrocity of the entire circumstances would recommend to popular credulity. The facts seem to be, that, after living this sort of life for a full quarter of a century, this wretch and his family were captured and put to death at Edinburgh; when it should seem, that the incestuous progeny of the atrocious couple were eight sons and six daughters, who again had produced eighteen grandsons and fourteen granddaughters, the whole family being *forty-eight*, or twenty-seven males and twenty-one females! The data of their numbers, and their general mode of life, are probably quite correct. The results are the same as those of the colony at Pitcairn's Island;

but it is difficult to believe that in *twenty-five years* one couple could have been the origin of such a multitude. The probability is, that a somewhat longer time than twenty-five years had elapsed before their capture. The result, however, is extraordinary.

Another instance to this effect is presented by the little Island of Malta. It is mostly rock. Such soil as is upon it, has, for the most part, been carried and deposited there. Consequently only vegetables and certain fruits are grown upon the island; and such animal food as is consumed is brought from the mainland. The native population are exceedingly poor; and as a consequence of that poverty are rapidly, and in spite of emigrations, getting more and more dense. If we take the evidence of Lieutenant Slade, the intelligent author of "Turkey, Greece, and Malta," and his comparison of Malta with Turkey, we cannot have a doubt as to the *increasing* population of one and the *decreasing* population of the other, nor of the causes of both. "Poverty (says Mr. Slade, vol. i, p. 116) is the prominent feature at Malta. * * * Why population should often increase *inversely* as a country, owing to sterility, or to its social condition, furnishes subsistence, I leave to political

economists to explain ; but *such is the fact.* Is it owing to the recklessness caused by having nothing to hope? Is it that a community of suffering is negative enjoyment? From whatever cause arising, human density, and consequently human suffering, at Malta, visibly increases."

		Males.	Females.	Total.
1835	Births	1773	1583	3356
	Deaths	1310	1185	2495
		463	398	861

Contrasting this rapid growth of the poor and pinched Maltese, amidst meagre diet and extreme poverty, with the different state of Turkey, Mr. Slade thus expresses himself :—

"The stationary principle is less difficult to oppose than the increasing DE-population. * * * On inquiring into their hardships (so-called), I could never descend so low as want of food, or of fuel, or of raiment! Oftentimes I have excited disbelief by hinting at the state of pauperism in Europe! *That* is beyond the comprehension of the Rayas of Turkey."—Vol. ii, page 78, 92.

In this view of the increasing diminution of people, throughout the rich provinces both of European and Asiatic Turkey, all modern

travellers—Eton, Slade, Urquart, &c.—agree. When with that evidence we contrast Mr. Slade's account of the actual state of the people on the barren rock of Malta, deprived of animal food and with an insufficient vegetable diet, the demonstration seems as complete as facts can make it.

A yet stronger and more complete proof of the effects of *depletion*, as exhibited amongst limited bodies of men, is, however, to be found in the excellent report of Sir John M'Neill, on the state of "the Western Highlands and Islands of Scotland," ordered by the Houses of Parliament to be printed in 1851, together with the evidence taken by Sir John on which his report is founded. This evidence is very voluminous, but some of its results are very extraordinary. It seems to be agreed on all hands that destitution and population have indubitably been increasing, as it were hand in hand, amongst the Western Islands of Scotland for, at least, a century.

Taking the returns of the numbers of a list of actual families on the islands of Tiree and Ulva, as given to Sir John M'Neill, the average is a small fraction above six; that is to say, there are, on the average, a father and mother and

four living children. In some of the islands, it seems probable, however, that this average is exceeded. George Rainy, Esq., Proprietor of the islands of Rasay and Rona, in the parish of Portree, states that "by a list, taken about a year ago, it appeared that the births, for the previous three years, had been in the proportion of *three to one of the deaths:*" and he adds that "there are numerous instances of families of nine, ten, eleven, and twelve individuals."

With regard to the circumstances under which this multiplication of births had taken place, Mr. Rainy is equally explicit. "It does not appear (says the proprietor) that, at any time, the population of this place drew their entire subsistence from the land. It seems impossible they could. Before 1846, the chief means of livelihood of such as had lands were potatoes—the occasional sale of whatever over-stock they reared of Highland cattle—supplemented by the proceeds of fishing; and by the earnings sometimes of the effective members of a family during a periodical migration, in summer and autumn, to the Lowlands.

"Since 1845, two of these sources of livelihood have failed—potatoes and the sale of cattle. The effects of the successive blights of the potato

crops have been fully recognized. Equal attention has not been given to the influence which the enormous depreciation in the price of small Highland cattle has had on the circumstances of the small tenants who depended fully more upon that resource than upon their potato crops. Heretofore, with the purchase of one, two, or three beasts sold at the cattle fairs, the small tenant was not only able to pay his rent, but often to realize a considerable surplus available for the purchase of meal. That state of things exists no longer. A Highland beast which, five or six years ago, would have readily brought £7 to £8, will not now sell for £3; or it would be perhaps more correct to say that the small breed of Highland cattle (the rearing of which alone is adapted to the circumstances of the crofters) are now next to valueless."—*Minutes of Evidence*, page 38.

The whole of the evidence taken by Sir John M'Neill goes to prove that, throughout a long period of years, throughout the Western Highlands and Isles, the condition of the people has been gradually getting worse and worse. After the war, the manufacture of kelp was soon superseded by the import of foreign barilla; and, next, by the manufacture of an artificial soda

from common salt. The consequences there have been poverty and a morbid growth of population, so decided that scarcely any of the properties can support the people now upon them; and that emigration, partial or total, and eleemosynary aid must be continually resorted to.

These circumstances, and the peculiar phenomena attending them, seem, at all events, to have made their proper impression upon the sagacious mind of Sir John M'Neill: and to assure himself of the effects upon the multiplication of the species produced by insufficient and vegetable diet, he has instituted an elaborate tabular comparison between twenty-seven of these poverty-stricken Western parishes and twenty-seven prosperous and "self-sustaining parishes" of the Eastern Highlands. The general result is given in the words of the *Quarterly Review*, which has omitted, however, to put upon record this brief, but most extraordinary, most instructive, and most convincing document. The following are the words of the *Quarterly Review*:—

"Sir John M'Neill gives a most instructive comparison between the twenty-seven parishes, to which his investigations extended, and twenty-seven others in the Southern and Eastern Highlands, which early in the century were

equally Gaelic, and, in many respects, similarly circumstanced in regard to fertility of soil, and extraneous resources, but which are now prosperous and self-sustaining, and suffered little from the scarcity of 1846. From this comparison it appears that, whereas the population of the latter had been steadily *decreasing* for the last fifty years (up to 1841), the population of the former had been as regularly increasing.

"The numbers of the prosperous districts fell, from 59,434, in 1755, to 41,989 in 1841, or a diminution of 17,445, being about 29 *per cent.* The numbers of the miserable districts in the west rose from 42,562, in 1755, to 96,304 in 1841, being an increase of 53,748, or 126 *per cent.*"

The author, in giving Sir John M'Neill's table, can only say that, in his humble opinion, it is, itself, all but sufficient to prove the truth of the theory now advanced.

"The subjoined tables show the progress of population and the annual value of real property,—No. I, in the twenty seven parishes to which the inquiry extended; and No. II, in twenty-seven purely agricultural parishes in the southern and eastern parts of the Highlands, in which Gaelic was spoken or preached in 1808, and which are now self-sustaining and prosperous."

TABLE I.

Parish.	POPULATION.								Annual Value in 1843.		
	1755.	1791.	1801.	1811.	1821.	1831.	1841.	1851.	£	s.	d.
Kilfinchin	1685	3002	...	3205	3967	3819	4113	2999	4668	16	10
Torosay	1012	1733	1764	2114	2288	1889	1612	1343	5007	13	4
Kilninian	2590	3281	3601	4064	4357	4830	4335	3952	7900	6	0
Portree	1385	1980	2246	2729	3174	3441	3574	3557	3195	9	3
Kilmuir	1572	2065	2555	2752	3387	3415	3625	3199	2883	8	6
Snizort	1627	1808	2144	2275	2789	3487	3220	3073	2957	11	8
Duirnish	2568	3000	3327	3361	4147	4765	4983	5332	4998	11	0
Bracadale	1907	2250	1865	1869	2103	1769	1824	1597	3920	15	0
Strath	943	1579	1748	2107	2619	2962	3150	3243	3026	19	0
Sleat	1250	1788	1903	1936	2608	2957	2706	2531	2097	7	6
Glenelg	1816	2746	2834	3611	2807	2874	2729	2464	6642	3	1
Kintail	693	1000	1038	1058	1027	1240	1168	1008	3017	4	6
Glenshiel	509	721	710	728	768	715	745	572	3014	1	7
Lochalsh	613	1334	1606	2034	2492	2433	2597	2290	3097	2	0
Lochcarron	771	1068	1178	1485	1932	2136	1960	1612	2889	5	11
Applecross	835	1734	1896	2297	2793	2892	2861	2714	2487	11	4
Gairloch	2050	2200	1437	2755	4518	4445	4880	5352	4809	11	4
Lochbroom	2211	3500	3533	3754	4540	4615	4799	4803	6343	14	8
Stornoway	1812	2699	2974	3500	4119	5422	6218	8038	3112	0	4
Barvas	1995	2006	2233	2165	2568	3011	3850	4191	1941	17	7
Uig	1312	1898	2086	2500	2875	3041	3316	3209	2542	1	5
Lochs	1267	1768	1875	1927	2669	3067	3653	4256	2514	2	3
Harris	1969	2536	2996	3569	3909	3900	4429	4250	4015	8	9
North Uist	1909	3218	3010	3863	4971	4603	4428	3919	4080	7	2
South Uist	2209	3450	4595	4825	6038	6890	7333	6221	5862	18	1
Barra	1150	1604	1925	2114	2303	2097	2363	1884	2869	12	9
Tyree and Coll	2702	3457	1162	3186	4181	4453	8533	4815	4473	6	2

TABLE II.

Parish.	POPULATION.							Annual value in 1843.		
	1755.	1795.	1801.	1811.	1821.	1831.	1841.	£.	s.	d.
Glenorchy and Inishail	4654	1669	1851	1743	1936	1806	1644	8886	1	7
Kilchrennan	1030	1124	566	626	591	851	943	4279	14	7
Lochgoilhead	1505	1012	1145	1072	1130	1196	1018	5601	13	9
Inverchaolain and Kilmorich	944	504	626	552	651	596	699	3282	11	7
Kilmodan	1806	351	502	622	731	648	567	3439	4	3
Buchanan	1699	1111	748	627	763	787	754	6400	0	0
Drymen	2789	1607	1607	1628	1661	1690	1515	1032	0	0
Aberfoyle	835	790	711	601	730	660	543	3600	0	0
Port	1865	1765	1569	1659	1614	1664	1446	8100	0	0
Balquhidder	1592	1300	1377	1353	1224	1049	871	6100	0	0
Callendar	1750	2100	2282	2042	2031	1909	1665	7200	0	0
Killin	1968	2360	2048	2160	2103	2002	1702	18136	16	11
Kenmore	3067	3463	3346	3624	3347	3126	2539	3515	2	0
Fortingal	3259	3914	3875	3236	3189	3067	2740	13300	1	2
Dull	4893	4676	4055	4329	4508	4590	3811	11649	5	9
Weem	1295	1364	1337	1372	1354	1209	890	4288	11	3
Blair-Athol	3257	3120	2848	2515	2493	2384	2231	11846	10	8
Dunkeld (Little)	2919	2705	2977	2982	2977	2867	2718	6073	5	3
Kirkmichael (Dunkeld)	2689	2200	1568	1460	1551	1568	1412	7993	7	4
Glenisla	1852	1018	996	1209	1144	1129	1134	4009	0	7
Crathie and Braemar	2671	2251	1876	1605	1897	1808	1712	6600	0	0
Strathdon	1770	1524	1354	1463	1698	1683	1563	4228	0	0
Alvie	1021	1011	1058	961	961	1092	972	4260	3	5
Croy	1901	1552	1601	1456	1538	1664	1684	3917	0	1
Daviot (Inverness)	2761	1697	1818	1634	1750	1788	1681	5288	10	0
Moy	1693	1813	1821	1359	1224	1089	967	3646	1	11
Coutin	1949	2500	1944	1844	1930	2023	1770	6405	19	7

If anything can add to the irresistible demonstration of the foregoing evidence, it is the facts, precisely to the same purpose, which we find recorded in Holy Writ. In the first chapter of Exodus we find that the Israelites, when reduced to a state of bondage by the Egyptians, increased their numbers so rapidly as to alarm their conquerors. In King Pharaoh this alarm seems to have reached its height. What says Exodus?

8. Now there arose up a new king over Egypt that knew not Joseph.

9. And he said unto his people, 'Behold! the people of the children of Israel are more and mightier than we.

10. Come on, let us deal wisely with them; lest they multiply and it come to pass that, when there falleth out any war, they join also unto our enemies and fight against us, and so get them up out of the land.'

11. Therefore, they did set over them *taskmasters to afflict them* with their burthens. And they built for Pharaoh treasure cities, Pithom and Raamses.

12. But *the more they afflicted them, the more they multiplied and grew.* And they were grieved because of the children of Israel!—*Exodus*, cap. i.

All this is precisely in accordance with the law of increase and decrease here attempted to be established. No sooner were the Israelites made slaves, than they increased their numbers faster than could their Egyptian oppressors. At length Pharaoh, fairly alarmed at the power of his own slaves, seeks to thin their numbers by increased toil and ill usage. His devices, however, turn upon himself. The more the Israelites are "afflicted" and over-toiled, the faster grow their numbers; and, after several vain cruelties, so powerful do these bond-slaves become, that, under the guidance of their great liberator and lawgiver, Moses, they emancipate themselves. If the evidence of heathen history is to be believed, both the Athenians and Spartans were similarly embarrassed by their slaves and Helots, and resorted to secret murder to thin their numbers. Under the Roman Republic the slaves, with Spartacus at their head, nearly subverted the government; and the history of Ireland affords some cases not very dissimilar. The entire history of Sparta, indeed, affords a singular proof how soon the two principles of decrease and increase show themselves, as the condition of a people is raised or lowered above or below a moderate standard of living. The

Spartans were a plain people. Luxury in Sparta was forbidden and despised. The most powerful Spartan lived coarsely and simply. But warfare was the only care of the "true Spartan," and the work was done by their slaves, called "Helots," who tilled the ground, tended the herds, and were the domestic servants of their masters. The difference in their living, therefore, could not be great; only the Helots worked hard, whilst their Spartan masters and mistresses were idle. The result was that the slaves increased their numbers so much as to cause great alarm, whilst the Spartan aristocracy diminished from year to year. To this fact the great investigator, Niebuhr, bears a direct and powerful testimony. They decayed, he says, as all aristocracies are found to decay; and so decided was this diminution, that, "B.C. 250, there were only (according to Niebuhr) about *seven hundred true Spartans left.*" "They must have perished after Leuctra, but for the Laconians;" so unable were they by procreation to repair their losses caused by alternations of war and laziness; "whilst their pride would not allow them (says the historian) to admit any new families."

A stronger proof than this of the immense importance of not diminishing too far the re-

sources of a people, as well as of checking luxury in every possible way, can scarcely be found. That the Spartans should be endangered by their mode of life, joined to the system of Helotism, seems a paradox. That it was the true state of the case, however, we learn from Niebuhr, the greatest and most sagacious of historical investigators.

With these examples the author must conclude this chapter. It would not be difficult to add to the number of such exemplifications. Enough, however, has probably been done to prove, to the satisfaction of the reader, the clear existence of the law of increase and of decrease amongst limited bodies of men, when under certain circumstances. It seems evident that where men are living in a state of ease and plenty, their tendency certainly is *not* to keep up their numbers, but the contrary. Thus we see that the nobility and very wealthy and highly privileged classes of all nations are in a continual state of decay; that such have been the facts with the English nobility and the English baronets; that such has been the case with the Venetian nobility; and, again, that such was the case with the ancient Roman nobility. Going a little lower, we see the same rapid decay

amongst the rich Swiss bourgeoisie, who are a sort of nobility. Going a little lower than that, we find the same tendency to a failure of the line amongst the wealthy free burgesses of the English boroughs. This, however, is in a mitigated degree; and in the less wealthy boroughs, we perceive the decreasing tendency lessening, and almost at a stay.

Turning to the other side of the question, and contemplating the few examples attainable of limited bodies of men subject to privation, we see the tendency to rapid increase most strikingly developed. In Pitcairn's Island we discover, amongst the colony of Adams and his mutineer companions, proofs of a stride in population far exceeding the most extravagant ideas of the most extravagant advocates for a reduplicating geometrical ratio. But then we find this accompanied with the absence of solid food, and with constant toil and exposure to the open air, and the vicissitudes of the climate. In the strange story of Donald Bean, the same results are developed: living amidst all the vicissitudes of an outlaw, often in total want of food, and probably never well supplied, the increase of these wretched beings seems to have been extraordinary,

and certainly to be accounted for in the same manner as that of Adams' colony.

In the little Island of Malta, which, as far as the poor Maltese are concerned, is just as destitute of animal or any rich nutriment as Pitcairn's Island, we perceive the same rapid increase of the poor inhabitants; whilst in Roumelia and the other rich provinces of European Turkey, where want of food, clothing, or lodging is unknown, and where the people live in a state of luxurious indolence, the government is alarmed by the decrease in the numerical strength of their subjects.

Sir John M'Neill's statement confirms to demonstration the existence of the same law. In the twenty-seven Western Highland parishes which he surveyed, the population are in constant risk of dying for want of nutriment. They barely continue to exist; the failure of a few potatoes, or the decline of the market for Scotch kyloes, brings an instant famine to their door; and, but for extrinsic aid, numbers would absolutely perish from the effects of want of food and raiment. Yet, under these appalling circumstances, we find this wretched population increase, between 1755 and 1841, by 126 *per cent.!*

Whilst, in the twenty-seven prosperous South-eastern parishes, Sir John has proved a decrease of people, during the same period, of 29 *per cent.* Of the substantial accuracy of these returns, which were obtained by Sir John M'Neill under the authority of Parliament, no doubt can be entertained. Nor is there the slightest reason why doubt should be entertained. All the other evidence, from Pitcairn's Island to the striking testimony detailed in the first chapter of Exodus, points one way, and proves as completely as testimony can, that upon the diet and general mode of living of a people depends their increase or decrease—*depletion* causing the first and *repletion* the second.

It will be the business of the next chapter to apply the same method of inquiry to larger bodies of men; to try to evolve the same results from the statistics of nations; and to demonstrate that, if put into a certain state, a whole people may exhibit the same results as a more limited body exhibits, and that depletion and low diet, whether amongst nations or families, is followed by an overabundant fecundity; whilst, on the other hand, luxury, solid living, and repletion, are the sure drag and stay to the onward progress of population.

CHAPTER V.

THE LAW OF INCREASE AND DECREASE, AS EXEMPLIFIED AMONGST NATIONS.

THE author would now draw attention to the statistical facts as to such nations of the globe as are at all accurately known, with the view of inquiring how these facts bear out the foregoing theory: they will, he believes, be found to do so with wonderful accuracy. It will be found, on examination, that such countries as are over-peopled are exclusively agricultural, and dependent upon vegetable food; that, on the contrary, the pastoral countries, where animal food and milk are the support of the people, their numbers are always low. In countries where the two modes prevail, the population is a medium as to number between the two extremes. The cultivation of the vine and olive, and the use of their

rich products as ordinary articles of diet, will also always be found to be connected with a somewhat moderate population. Such are the general results which are to be deduced from the following details to which the author now proceeds.

The statistics of the Russian empire, including as it does various races of people, living in climates the most different, upon soils the most opposite in quality, and all under one government, foreign to each other as they are in habits, customs, modes of life and language, afford perhaps the most striking and curious exemplification of the effects upon population caused by different modes of living. The immense area of the Russian empire—that is to say, all its Asiatic, and a large portion of its European dominions—is inhabited by a people the most truly pastoral of any existing in the world. Their wealth is cattle. Their exports are the tallow, hides, and horns. Their food is the flesh. Agriculture, as a means of subsistence, is of no value. Their summer is brief and sudden; it grazes and it fodders their herds of cattle, but beyond this is nothing. Vegetable aliment is a mere fraction in the food of the population; and what bread is in countries less pastoral, beef is to the Russian boor and his scarcely more cultivated master. It is impossible

that the fact should have been otherwise. Where the cattle are slaughtered for the sake of the tallow and hides, the flesh must, as a matter of course, be the food of the people. It is so plentiful as to be almost valueless. In the capital of St. Petersburgh even, excellent beef is always to be had at about the price of an English penny per lb. Three halfpence per lb. is a rare price to anybody, and under any circumstances; and yet the herds of cattle which supply the capital are driven from very great distances. Throughout not only the capital towns, but the whole empire, frozen game of all descriptions is plentiful in the extreme; and the rich and oily flesh of the salmon and the sturgeon, pickled or salted, forms an ingredient of this rich dietary from which also the less delicate oil of the whale and seal are by no means excluded, though not prominently brought forward. The kingdom of Poland, however, and the Russian provinces bordering on Russian Poland, are essentially corn countries, and hence the food of their people is totally and altogether different. Wheat, rye, and barley are the staple commodities of these countries: they are consequently the principal aliment of the inhabitants. Thus the food of the people of Russian Poland, Courland, &c., is the exact opposite of that of

the other inhabitants of the immense territories of the Czars; and from these opposite states, effects the most opposite have been produced. The consequence has been, that the population of the corn countries, compared with the rest, has been as five to one! Nor have political circumstances in the slightest degree interfered to bring about these results, but the contrary. The serfs being the most valuable part of the stock of an estate, the Russian landlord, so far from wishing to clear his lands, counts up his boors as he does his cattle, by the head, wishing both to increase and multiply; and it is well known to all who know Russia, that the conscriptions for the army are felt to be more grievous when directed towards the two-legged, rather than the four-legged inhabitants of the lordship. Bearing, then, all these circumstances in mind, let us look at the broad facts, as stated in "M. Hassel's Tables of the Population of Russia," as represented by Malte Brun. These tables are beyond a doubt substantially correct. They were compiled and published under the sanction and supervision of the Russian government, and if error there be, the side of paucity of numbers is not that on which the error was likely to be made. In using these tables, it must be premised that the *Russian*

square mile of M. Hassel is equal to *twenty* English square miles, or rather more than *two English square leagues.*

RUSSIA.

Grand Divisions.	Square miles in it.	Population.	Number to a square mile.
Russian Empire . . .	367,494	59,263,700	161
(divided into)			
European Russia . . .	72,861	44,118,600	606
Kingdom of Poland . .	2,293	3,541,900	1,544
Asiatic Russia	268,339	11,663,200	43¼
American Russia . . .	24,000	50,000	2¼

Here, then, taking the grand divisions alone into view, it results that, in the kingdom of Poland, where corn rather than animal food is the aliment of the people, but at the same time with an abundance of it, the numbers upon a Russian square mile are, upon the average, 1,544 individuals, or nearly *ten times* the average to the square mile, including the whole empire. If more minute divisions are taken, similar results are exhibited. In the Duchy of Courland and in Western Russia, for instance, the results are as follow:—These countries border upon Poland, and are similarly circumstanced, being essentially corn countries. In order to show that this population is spread equally over

the surface of these countries, and not caused by masses of people collected by local circumstances into large towns, the population of each government, as stated in the Russian statistical tables, is given. Thus, there is no room for doubt as to the population being the natural population of these countries.

Division.	Square miles in each.	Population.	Persons to a square mile.
Courland	509	581,300	1,142
Western Russia . . . (including)	7,537	8,488,900	1,125
Government of Wilna . .	1,081	1,357,400	1,255
. . Grodno .	326	868,100	1,619
. . Bialystock	158	224,600	1,422
. . Witepsk .	668	934,900	1,398
. . Mohileu .	918	985,400	1,073
. . Minsk. .	1,832	1,160,100	633
. . Volhynia .	1,394	1,496,300	1,072
. . Podolia .	948	1,462,190	1,542

Such are the results of a comparison of the population calculated upon the square Russian mile, as afforded by the corn-growing countries of the Russian empire. With the single exception of the government of Minsk, the peopling of each district is somewhere between (1,000) one thousand and (1,600) sixteen hundred to the Russian square mile. If these districts be so compared to the most fertile, pastoral, or cattle-

feeding districts of the Muscovite dominion, the result will be found to be very striking. In short, it will be found that the regions most fertile in cattle, or, in other words, *animal food*, are the least so in men.

Let us take, for example, the kingdoms of Astrakhan and of Kasan. They are amongst the finest pastoral provinces of Russia, and from the last (Kasan) comes a considerable portion of the tallow exported by the Russians. It is of fine quality throughout, though perhaps less skilfully dealt with than the tallow from the Southern provinces of the empire, properly so called. This is a proof, as far as it goes, that the cattle are not only completely, but slowly fattened, and that no exigencies of the population render it necessary to bring them prematurely to market, or to slaughter them when in imperfect condition. Astrakhan is less rich.

Names of divisions.	Square miles in each.	Population.	People to each mile.
KINGDOM OF KASAN . .	11,521	5,746,250	498
(including)			
Government of Kasan . .	1,123	1,028,150	915
. . Viatka. .	2,221	1,293,800	582
. . Perm . .	5,996	1,269,900	212
. . Simbrisk .	1,402	1,119,400	798
. . Pensa . .	777	1,035,000	1,331

Names of divisions.	Square miles in each.	Population.	People to each mile.
KINGDOM OF ASTRAKHAN (including)	13,823	2,598,700	118
Government of Astrakhan	3,899	222,700	57
. . Sawtow .	4,297	1,333,500	310
. . Orenburgh	5,626	1,043,500	185

Such are the states of populousness of the districts or kingdoms of Kasan and Astrakhan—two countries both fertile and pastoral in a great degree.

The most decidedly pastoral districts of the Russian empire are, however, those comprised in the fine region emphatically called Southern Russia.

Upon these immense and beautiful plains, or undulating tracts, are the countless herds of cattle reared and fed from which is derived the greater portion of the tallow and skins which form the grand articles of export from the Russian empire. From these distant grazing lands a constant driving of herds of cattle goes on, and the expense of this driving fixes principally the value and price of the tallow. Hence, at high prices, it has been found that there is hardly a limit to the possible supply. The cattle are driven so slowly as to be fattened, and kept fat,

as they move on towards the place of slaughter, and some of the nobles over whose estates they pass, derive large revenues from this source alone. Some years ago Count Orloff received annually 30,000 silver roubles in tolls of this sort from a single estate—being upon 120,000 head of cattle at the rate of 25 copeaks per head. The ultimate destination of these herds is the town of Columna, or Kolumna, which is one immense slaughter-shop, the greatest in all Russia. Thence the tallow is brought to the coast for shipment. Let us now look at the population of Southern Russia, and also at the Slobodes of the Ukraine, which also help to produce these countless herds. It is as follows:—

Name of District.	Squ. Russian miles.	Population.	Numbrs. to a mile.
Southern Russia, ... (including)	8772	2,316,600	265
Government of Ichatuinoslaw .	1417	826,100	583
. . Kersou . .	1206	459,400	380
. . Taurida . .	1646	346,200	211
. . Don Cossacks	3611	369,800	102
Slobodes of Ukraine . . .	1118	914,400	817

Thus, in the most pastoral provinces, where the cattle are the sole produce, and the sole food almost of the people, the numbers are lowest.

In short, in Southern Russia, the pastoral district, the population to the square mile is not one-sixth that of the corn country, Poland.

With this state of population as existing throughout these immense pastoral districts, let us contrast the state of countries equally extensive, but pursuing a mode of life precisely opposite to that of the Russian serfs.

The countries of China, Japan and Hindostan present perhaps the most striking example of the effects of a diet, nearly or altogether vegetable, upon a people. In the first of these countries the people seem to have spontaneously for ages given the preference to agriculture, and neglected the rearing of animal food, until the density of the population has rendered it no longer practicable if a change were contemplated. In Japan the government itself interferes, and compels its people to cultivate vegetable rather than rear animal food. In Hindostan, the Brahminical religion interferes to prevent the shedding of the blood of animals. Hence in China, horned cattle and sheep are almost unknown, and in Japan totally so. In British India flesh-meat is only eaten by the European and Mahometan part of the population. If we look at the statistical

details of these countries, we shall find a redundancy of population to an enormous extent. With regard to the two first mentioned, we are certainly without those minute and highly accurate details which we possess as to Russia and some other countries. But enough is known to show the certainty that such is the truth; and the accounts of the population of British India fully bear out the more general statements as to the numbers inhabiting the two first mentioned.

The area of China Proper, is in round numbers one million two hundred and ninety-eight thousand square miles, or one hundred and forty-five-thousand square leagues—as to its precise population there is certainly some dispute. It was estimated by Father Allerstein in 1743, and again by Lord Macartney in 1795, upon the testimony of the Chinese authorities. Both of these estimates were sanctioned by men who had intimate or personal knowledge of the country in question; both, however, have been disputed. Let us first take the estimates themselves, and then examine the grounds of objection :—

POPULATION OF CHINA.

Provinces.	Allerstein, 1743.	Macartney, 1795.
Fongtain	668,852	38,000,000
Petchilli	15,222,940	
Kiangnan	45,922,439	32,000,000
Kiangsi	11,006,604	19,000,000
Tchekiang	15,429,690	21,000,000
Foukien	8,063,671	15,000,000
Hooquang	16,910,423	27,000,000
Shanton	25,180,734	24,000,000
Honan	16,332,507	25,000,000
Chansi	9,768,189	27,000,000
Chinese division Singan	7,287,443	18,000,000
——— Kansoo	7,412,014	12,000,000
Sc-tchooen	2,782,976	27,000,000
Koo-ang-Tong	6,782,975	21,000,000
Koo-ang-Si	3,947,414	10,000,000
Yooman	2,078,892	8,000,000
Koeicheoo	3,402,722	9,000,000
Total	198,213,713	333,000,000

These estimates are objected to by M. Malte Brun, who seems eager to depreciate the Chinese as a nation. He is one of those writers who seem to be thoroughly possessed with the notion that population is one of the tests of prosperity and industry, and he accordingly taxes his ingenuity to bring together objections to the probability of the accounts of the dense population of these regions. His objections are, first, that there are something like repetitions of the

names of the provinces, as given by Macartney and Allerstein: secondly, that the disproportion between the two as to numbers is incredible: lastly, that in the time of the Emperor Kienlong, the peasants liable to tribute were only twenty-five millions. It is curious enough that in the table giving the proportion of tax paid by each province, the same names exactly are given as those in Macartney and Allerstein's population tables. The result is as follows:—

Number of Peasants subject to the Tribute.	Tribute in Wheat in Chinese bushels.	Tribute in Silver in hand.
25,165,390	6,396,286	28,360,800
	Bushel, 12,070 Cubic Inches, French.	Lana, 709 Dutch *As.*

He also gives the ancient statements as to population, which are certainly far below the modern statements. It is to be doubted, however, if these statements included the whole of what is mapped as modern China Proper. The ancient statements are as follow, and they exhibit, if at all accurate, some remarkable fluctuations in the *rates of fecundity.*

	Families.	Mouths.
Census in the First Century .	12,233,062	59,594,978
A.D. 740, Tang Dynasty . .	8,412,800	48,143,600
A.D. 1393, Hong Voo . . .	16,052,860	60,545,812
A.D. 1491, Hiao Tsoug . . .	9,113,446	53,281,158
A.D. 1578, Van Lie	10,621,436	60,692,856

The author gives the above, not as bearing much upon the question of the present numbers of the Chinese nation, but as exhibiting remarkable fluctuations of population, resulting altogether from a change of fecundity amongst the same people. The first census, on comparison of the mouths of the families, gives not quite *five* to each family. In the year 740 the fecundity has increased to *six*, the average family; in 1393 the population has doubled, but from some cause a decrease takes place in the rate of fecundity, and the average family is under *four*; in 1491 the people are again decreased nearly a half, but the average family is nearly *six* persons; in 1578 the average family is *six*, and population increasing. To what these changes of fecundity are owing, it would now be difficult to trace; but of the changes having taken place, there seems to be fair evidence.

Let us return, however, to the objections of M. Malte Brun. It seems clear enough that no faith in the accuracy of Lord Macartney's account can be entertained, the Mandarins having palpably arranged the numbers so as to give 333,000,000. But it does not at all follow that the truth does not lie between this account and that of Father Allerstein in 1743. So far is the result of the tribute table from *weakening Allerstein's account*, that it confirms it. It is well known, that if those capable of bearing arms in a country be selected, they will be found to amount only to about a sixth part of the people, but the persons or peasants liable to pay this tax were clearly only a portion of the adult male population. If any females were liable they must have been few in number, there being few unmarried females in China; and of the adult males, all the privileged orders, all the very poor, all the soldiery, all the seamen, all the other employés of government, and all those who in any way evaded the tribute, must probably be deducted. If then, as is not unlikely, the persons subject to, and paying this tribute, confined as it was to wheat and silver, were not more than a *seventh* or *eighth* part of the entire community, Allerstein's account is confirmed by the result. From

1743, the date of Allerstein's calculation, to 1795, that of Lord Macartney's, is a period of half a century. What improbability is there then, in the supposition that during this period the population of this densely peopled region, as it is known to be, may not have reached 250,000,000 or 280,000,000 of persons? Taking the area at 145,000 square leagues, this would give 1724 persons in the first case, and 1931 in the second case, to each league; a result the reverse of improbable, when Ireland and some of the poorer European countries are looked at, where the food of the inhabitants is vegetable for the most part, as in China. Throughout the whole of the Celestial Empire this is certainly the fact. Rice is the principal aliment, and tea or water the beverage of the people. There are no fermented liquors, and fewer animals of any sort than in any other country, the Japanese Islands perhaps excepted. On the coasts fish is abundant, as well as in the great rivers, upon which last two millions of people are believed to pass their lives in crafts of various kinds. The whole interior is known to be in a high state of cultivation, and early and universal marriages are enjoined by the State. The density of the population is admitted by all travellers; and it has

long been known that in China, everything that admits of it is made available for food, and that rats and other vermin are eagerly eaten by the natives. If to this is added the mortality and exposure of children, which since Lord Macartney's embassy are undoubted, we have every reason to believe that his general view of the immense extent of Chinese population accords with truth, though the folly of the Mandarins has thrown discredit upon their statements; and it is now asserted by Mr. Montgomery Martin that the empire contains 367 millions, and the tributaries 40 millions of souls. Under any view, if China, where there is no animal food, be contrasted with Russia, where there is little else, it is impossible not to be struck with the difference of the two countries in this particular, similar as they are in some other essential points. In the Empire of Japan we find similar causes producing similar effects. In these Islands agriculture, to the total exclusion of pasturage, is enjoined by law, and the consequence is a total want of animal food, as well as of the animals which might afford it. Thunberg states, that in his time there were probably more horses in a province of Sweden than in all the Japanese Empire. Of the larger cattle there are none, and goats and sheep are

totally banished. Cotton and silk supply the place of wool. There are a few swine in the vicinity of Nangasacki, and superstition has saved the lives of a few dogs. Since the expulsion of the missionaries in 1630, the jealousy of the Japanese has excluded the country almost from the knowledge of Europeans. It is quite certain, however, that the aliment of the people is vegetable, and the population is dense in the extreme for a country so mountainous and the reverse of fertile. Golownin, a Russian naval officer, who with his crew was imprisoned there in 1811, 1812, and 1813, bears general testimony to the immense population of such places as he saw during his detention; his evidence as to diet is also decisive. The food he partook of was generally rice cooked in different ways, soup composed generally of radishes with wild herbs and seasonings, salted or fresh fish, and fruit. The beverage was water, tea, or a small beer, made by fermenting rice called sagi. He describes the Japanese as accounting not only all sorts of fish, but all marine vegetables, as eatable. The fish on the coasts seem to be very plentiful, and the modes of taking them wonderfully successful. His detention lasted upwards of two years; during that time he tasted of

three or four fowls, eggs occasionally, and as a treat on his release, of ducks, geese, and game; but of anything like butchers' meat there was a total absence. The Dutch writers confirm these accounts. They describe the soil as sterile, but cultivated with prodigious care even high up the mountains. All accounts concur in describing the population of the habitable parts as dense in the extreme. The capital city, Jeddo, is believed to be the largest in the world, and to contain 1,680,000 inhabitants. The armies maintained by the Keebo, or military dictator, and the federal tributary Princes, are said to amount to 468,000 infantry and 53,000 cavalry, for which purpose alone horses are bred by the government. They have little or no marine, and now are nearly without foreign trade. The most striking proof, however, of the "prodigious population" of these islands, is to be found in the amount of the revenue. This is stated by Varencies, a well-informed Dutch author, at the enormous sum of *two thousand eight hundred and thirty-four* Dutch tons of gold, which, valuing the ton at ten thousand pounds, will be upwards of *twenty millions sterling*. And this (says M. Malte Brun) is without reckoning the provinces and towns which depend immediately on the Emperor.

It is impossible to conceive that sums so enormous should be levied directly from a people destitute of foreign commerce, and inhabiting a country not exuberantly rich, unless that people were very numerous. The area of the empire is estimated to be 266,500 square miles English, or 29,600 square leagues. Malte Brun, who admits its "prodigious" density (as is usual with him in speaking of these regions), underrates the amount of population, which he calls thirty millions. It is believed, however, to be about forty-five millions, which gives in round numbers 1,500 persons to the square league; a wonderful proportion, when it is considered that these islands consist mostly of mountains; that the soil is comparatively sterile, as compared with continental Asia, and the climate inclement, the highest peaks being covered with snow all the year.

Many readers will, perhaps, hesitate as to what reliance should be placed upon the foregoing statements, relating as they do to regions as to which our statistical knowledge is confessedly very defective, and only general. Nor would such hesitation be improper, were it not luckily the case that ample and complete corroboration is at hand in the statistics of regions very similar

in the habits of their inhabitants, and as to which our knowledge is perfect and undoubted. The regions in question are the British territories in India, and those of the allies and tributaries of the British Government, together with the few independent States, forming altogether the immense territory of Hindostan. Of the larger portion of the natives of these regions, it is notorious that their religion, which is Brahminical, forbids the use of animal food. The heat of the climate conspires with their superstition to prohibit the resort to this aliment. It is accordingly hardly eaten at all, excepting by the European residents, the richer Mahometans, and a few of the degraded native castes, who, however, cannot obtain much from the want of means. Rice, of which there are *twenty-seven* Indian varieties, is the principal food, in point of fact, of *all* classes, Europeans hardly excepted. Upon it the native inhabitants depend for subsistence; and a failure in the rice crop occasions a famine, to which, for extent of suffering, no dearth in European countries can be compared. These famines are not unfrequent, and are thought, at times, to have caused the death of hundreds of thousands of persons. The different tribes are often

in a state of warfare. The Asiatic Cholera, never wholly extinguished, from time to time destroys its millions, yet all these causes of diminution have not sufficed to keep down the population of these regions, which, in the level and cultivated parts, is wonderfully dense. Of British India, indeed of Hindostan, the finest portion is unquestionably the province of Bengal. It is situated on the lower part of the course of the great river Ganges, which divides into two parts nearly equal. It is fertile in the extreme, and highly cultivated. The climate, however, is very unhealthy, an insalubrity which is increased by the mode of cultivating rice, which is irrigated from large standing pools of water, artificially embanked by the cultivator. Southern Bengal produces no other edible grain; but as the country rises towards the north, wheat, barley, and the potato are also grown. The rivers, as well as the coasts, abound in fish. Such is the food of Bengal, and the following table will show its effects on the population; of its general accuracy there can be no doubt:—

POPULATION OF THE BENGAL PRESIDENCY FOR 1820.

Territories.	British square miles.	Population.	Numbers to the square league.
Bengal, Bahar, and Benares	162,000	39,000,000	2,166
Additions since 1765 . .	148,000	18,000,000	1,094
Gurwal Kumaoon, and tracts between Sutledge & Jumna	18,000	500,000	250

Thus we see that in the old and more completely cultivated territory of Bengal, where rice and fish are the food of the natives, the population has reached the enormous amount of *two thousand one hundred and sixty-six persons to each British square league*, a strong corroboration of the truth of the alleged populousness of China, which has been for time immemorial under a similarly high state of cultivation.

The two other Presidencies of Madras and Bombay are not only much more mountainous, and far less fertile, but are also far less completely cleared and cultivated. The territories of the British tributaries, and those of the allies and the independent States, are similarly circumstanced. Much of their surface is yet forest, mountain, swamp, and jungle, the habitation of the elephant and the tiger, the buffalo and the rhinoceros: yet even here the population to the square league

British is not less, or much less, than *one thousand* on the average, an extraordinary one for a tract where cultivation is almost confined to the banks of the rivers. The following will shew the result :—

Territory.	British square miles.	Population.	Numbers to the square league.
Madras Presidency . . .	154,000	15,000,000	882
Bombay Presidency . . .	11,000	2,500,000	2,049
Deccan	60,000	8,000,000	1,201
Total	225,000	25,500,000	1,020

The next table shews the population of some of the territories of the principal tributaries and allies of the British :—

Territory.	British square miles.	Population.	Number to the square league.
The Nizam	96,000	10,000,000	1,000 nearly
The Nagpoor Raja . . .	70,000	3,000,000	390
The King of Oude . . .	20,000	3,000,000	1,363
The Guicowas	18,000	2,000,000	1,000
The Mysore Raja . . .	27,000	3,000,000	1,000
The Satarah Raja . . .	14,000	1,500,000	937
Travancore and Cochen .	8,000	1,000,000	1,100
Kotah Brondu Bossaul .	14,000	1,500,000	937

Of the independent States, which are only five,

the dominions of Scindia and Affghan territory are the most fertile and populous, and they give similar results. Nepaul is the poorest, most rocky, and least populous. Such is the population of those portions of Asia, where climate, soil, religion, and manners have united to force a diet of vegetables only upon the inhabitants. If we turn to Europe, and examine those countries where poverty or any other cause has induced similar modes of living, we shall find the results to be similar. This populousness then does not arise from climate, or any peculiar physical constitution of the people, but from the nature of their food, and its restricted quantity; in short, from poverty of diet in quality or in quantity, or in both.

Ireland is beyond a question the poorest country, as to the destitute state of its population, of all Europe, perhaps of the whole globe. Of a population of *eight millions of persons*, it has been ascertained, after an inquiry instituted by Parliament, that not less than *two millions and a quarter* were wandering and houseless mendicants, subsisting upon the charity of their hardly richer brethren. The owners of the land to a great extent spend their incomes in other countries. There is no Poor-law efficient to oppose a check to destitution and starvation.

The dignitaries of the Establishment do not reside on their benefices, and spend their tithes in many instances in England altogether, or on the continent; whilst the Roman Catholic church is too poor to allow its ministers to alleviate by charity the sufferings of the people. In this state of poverty the mode of living of a people so destitute may be easily conjectured. Dwelling for the most part in mud cabins, without window or chimney, save a hole in the wall or roof, and shivering over a fire of peat, they live almost solely on the potatoes which they raise upon their little holdings; their children partaking, perhaps, of the milk of their cow, if they possess one Of clothing proper for the climate they are as destitute as they are of proper aliment, and the pig of the Irish peasant is often as well fed, and little less profusely bedded and clothed than himself. In point of fact, not only all the live stock of every description, but every edible, whether in the shape of cured provisions, wheat, barley, peas, beans, butter or lard, is exported from Ireland and consumed, the only exception being the potato. The cottager who tastes bacon four times a year is a lucky man, and a little whisky forms his sole departure from the beverage of nature, water. The money

amount of Irish cattle and provisions of all sorts *imported into the town of Liverpool alone* in the year 1831, was estimated to be as high as £4,497,708.

In 1832, the returns give £4,444,500 as the value.

Nor is this state of things without its drawbacks upon the increase, real or apparent, of the Irish population. The poverty of the country and the prevalence of distress, cause a constant emigration of all who can find the means to leave it. Every year numbers ship themselves for the United States, or for the British settlements in America. Greater numbers still cross the Irish Sea to the West of England and Scotland, and making their way to the Metropolis and to the great towns, continue there as labourers. Numbers enter the army, and many the navy. In Ireland itself, constantly recurring failures of the potato crop, attended with the malignant fevers which ever accompany dearth, thin for a time whole counties. Civil wars and oppressions have also done much to keep down the numbers of this unfortunate race. From the time of the Reformation, under Henry VIII, to the Protectorate of Cromwell, Ireland presents a scene of slaughters, rebellions, and bloodshed, under every

form. Again, at the Revolution of 1688, Irish blood flowed in torrents in behalf of the exiled family. Since that period the Orange Protestant party have held the Roman Catholics under constant persecutions and oppressions; yet has this miserable population gone on rapidly increasing, and making more and more rapid head against all these numerous apparent causes of diminution and extermination.

At the close of Elizabeth's reign the Irish people remaining were estimated, probably erroneously, to be no more than *seven hundred thousand* in all!

Sir William Petty conjectures the population, at the close of the wars in 1652, to have been about *eight hundred and fifty thousand souls*; which he supposes increased to *one million one hundred thousand persons* in 1672. Subsequent investigators have arrived at the following conclusions. They are no doubt founded on different data, and only amount to probable guesses at, or approximations to the truth. They prove that in the space of one hundred and thirty years the population of Ireland has more than *quadrupled* itself, and that it has increased, as distress and poverty and want of food increased, with an

accelerated velocity, as if the pressure caused by its own density urged it forward.

ESTIMATED POPULATION OF IRELAND AT VARIOUS PERIODS.

		Persons.
1695	by Captain South at . . .	1,034,102
1712	. Thomas Dobbs, Esq. . . .	2,099,094
1718	. The same	2,169,048
1726	. The same	2,309,106
1731	. The Established Clergy . .	2,010,221
1754	. Hearth Money Collectors . .	2,372,634
1767	. The same	2,544,276
1777	. The same	2,690,556
1785	. The same	2,845,932
1788	. Gerv. Parker Bushe, Esq. . .	4,040,000
1791	. Hearth Money Collectors . .	4,206,612
1792	. Rev. Aug. Beaufort . . .	4,088,226
1805	. Thomas Newnham, Esq. . .	5,395,456
1813	. Incomplete Parliamentary Census .	5,937,856
1821	. Parliamentary Census . . .	6,801,827
1831	. Parliamentary Census . . .	7,734,365

Of the whole number thus ascertained by the census of 1821, which was the most carefully taken, it was found that 1,138,069 were employed in agriculture; 1,170,044 in various trades, handicrafts, and manufactures; and that 528,702 were employed in other avocations, not included in the foregoing, making the total of employed persons 2,836,815 only. If the rate of increase, as indicated by these returns be taken, the recent population of Ireland cannot be calculated at less than *eight millions and a half.* Let us

now see the proportion of people to the *square British league* upon the total area of the country. Ireland is held to consist, by one estimate as ordered by Parliament, of 19,441,944 statute acres, and by another of 20,399,608 statute acres. Its area in square British miles has been callculated at 31,875 square miles ; and by Wakefield and Arrowsmith, at 32,201 square miles. *Thirty-two thousand,* in round numbers, is probably near the truth. Reducing this to square leagues, and dividing the population by their number, the result is as nearly as possible, *two thousand three hundred and ninety-one persons to the square British league;* a population rivalling those of India and China—the uncultivated land, bog, and lake being to the cultivated land as follows, in round numbers about *six to fourteen:*

Cultivated.	Mountain and Bog.	Lakes.	Total in Statute Acres.
14,603,473	5,340,736	455,399	20,399,608

When to this we add the fact, that the cultivation of Ireland, owing to the poverty and ignorance of the inhabitants, is miserably defective, this result is certainly extraordinary.

We now turn to England herself; and England, perhaps, of all countries of this globe, exhibits phenomena the most puzzling to an inquiry of the nature of that which forms the subject of this treatise. Manifesting as she does all the signs of external wealth and power, these manifestations are yet accompanied by symptoms indicating a situation the reverse of prosperity; an increasing and alarming poor's-rate, a growth of crime, and a too rapidly augmenting population. The question, then, to be solved is this: does this increasing population, linked as it is with an increase of poor, with augmented poor-rates, and augmented crime, and with other evidence of a deteriorating condition of the labouring classes, prove, in spite of the contrary indications of wealth amongst other classes, the probable truth of the theory which forms the subject of this essay? In the author's opinion it certainly does prove this truth. If it does so, it must certainly, however, prove another collateral or correlative truth; that is to say, that the condition of the majority of the English people has, for a series of years, been *deteriorating* and still *continues to deteriorate.* That this is *a consequence,* according to the theory of population here propounded, the author willingly admits,

believing it, as he does, to be indubitably true *in point of fact.* The proofs of this truth appear to him to be apparent in the following statistical facts:—1. The increased poor's-rate: 2. The increase of crime: 3. The diminished consumption of malt. In his general remarks upon these points he will not, in this division of his work, go far back; he will contrast the sum levied for the poor in 1670 with those levied since that time; but upon the other points in question, he will merely avail himself of the evidence of the modern time, and content himself with showing that it sufficiently accounts for the increased population of this country throughout the last half or three quarters of a century. Let us first see what has been the known progress of the population of Great Britain, and then compare with its increase that of poor's-rate and crime. As for the diminished consumption of malt, that is a fact of general notoriety, and is known to be certain from the different Excise returns of the duty. The following table shows the progress of the population of England, Wales, and Scotland, separately as well as jointly:—

SUMMARY OF THE POPULATION OF GREAT BRITAIN.

	1801.	Increase per cent.	1811.	Increase per cent.	1821.	Increase per cent.	1831.
England	8,331,434	14⅝	9,551,888	17⅞	11,261,437	16	13,089,338
Wales .	541,546	14	611,788	17	717,438	12	805,236
Scotland	1,909,068	13	2,185,688	16	2,093,456	—	2,365,807
Army and Navy	470,598	—	640,500	—	319,300	—	277,017
Total	10,942,646	15¼	12,989,864	14	14,391,631	15	16,537,398

Thus the population of England has, it seems, increased between 1801 and 1831 as 9 is to 14, and that Scotland has nearly kept pace with this. The following are the returns of the amount of poor's-rate levied in the different years given. They are extracted from returns ordered by Parliament:—

Year.	Amount of Poor Rate
1673	£ 840,000
1698	819,000
1700	1,000,000
1776	1,720,316
1783 } 1784 } 1785 }	Average. 2,167,748
1801	4,800,000 (probably).
1803	5,348,204
1812-13	8,640,842
1820-21	8,411,893
1821-22	7,761,441
1823-24	6,898,153
1830	8,111,422
1831	8,279,217

The author has been unable to ascertain the amount of rate for 1801, but it was certainly not more than five millions, although the two years preceding had been years of scarcity, amounting almost to famine. The nominal increase of the rates then from 1801 to 1831 may be stated as from 5 to 8, but the real increase is *much* greater, inasmuch as allowance for the alteration in the value of money brought about by the Currency Bill of 1819, which is generally known by the title of Mr. Peel's Bill. What the exact enhancement of the value of the currency was after 1829, when the Bill was carried into its fullest effect, the author will not here attempt to determine. It is sufficient that it is generally

admitted to have been considerable; and that, upon the *lowest computation* of the value added to money by the extinction of the Bank-notes under five pounds in 1829, the poor's-rate of 1831 must have been triple that of 1801 in reality, though not in name.

Of the increase of crime the evidence is not less decisive. In 1827 a Committee of the House of Commons appointed to inquire into this subject, not only fully admitted in their Report the fact of this alarming increase, but adduced evidence unquestionable of it. The following table of commitments is extracted from the Appendix of the Report of 1827. It is appalling.

COMMITMENTS FOR ENGLAND AND WALES FROM 1806 TO 1826 INCLUSIVE.

(Extracted from Appendix of Commons' Report, 1827.

1806.	1810.	1811.	1812.	1813.	1814.
4,346	5,146	5,337	6,576	7,164	6,390

1815.	1816.	1817.	1818.	1819.	1820.
7,818	9,091	13,932	13,567	14,254	13,710

1821.	1822.	1823.	1824.	1825.	1826.
13,115	12,241	12,263	13,698	14,437	16,147

That this enormous increase—the commitments of 1826 almost quadrupling those of 1806—has been caused by distress is evident from the table itself. The first great increase is in 1817, when the revulsions in commerce caused by the end of the war produced excessive manufacturing pressure and difficulty, from which the population generally seem never to have recovered. In 1822, when, owing to the preparations for withdrawing the Country Bank paper below notes for *five pounds*, the prices of provisions were greatly lowered, an amendment in morals seems to have followed. This is again extinguished by the rise in prices and monetary crisis of 1825-6, and since that period, crime in England has gone on increasing year by year.

The following table is extracted from Official Returns on this subject up to 1834 :—

1827.	1828.	1829.	1830.
17,924	16,564	18,675	18,107

1831.	1832.	1833.	1834.
19,647	20,829	20,072	22,451

Thus the commitments of 1834 *quintuple* those of 1806; a growth prodigious, and only to be accounted for by the fact of an *increasing pressure* upon the lower classes of this country; for during this period *general education* and the *building of places of worship* have been greatly promoted.

Later returns prove that this increase of crime is still rapidly and fearfully advancing. The following are the commitments during the six years from 1843 to 1848, inclusive. The march of criminality exhibited is fearful :—

1843	committed	29,581
1844	„	26,542
1845	„	24,303
1846	„	25,107
1847	„	28,383
1848	„	30,349

To endeavour to evade these evidences of pressure upon the British population, as some liberal writers attempt to do, by a reference to the *increased value of life* in England, compared

with its value some centuries ago, is very absurd. From the bare fact of a greater average value of life, little certain can be deduced as to the prosperity of a nation, if the comparison is to be made with the value of life some centuries before. If we refer to that luxurious era which existed just anterior to the Reformation, we shall, no doubt, find the value of life then much less than now. But are we, on that account, to ignore the facts, and shut our eyes to the statute-book? Such writers seem to forget that a mode of life too solid and luxurious shortens life, in many instances, just as surely as does severe privation; nay, more surely. Extreme repletion (as all medical men know) lays the foundation of more diseases than does depletion. We must also take into account the great advances made in modern times in the sciences of medicine and surgery; the better ventilation since the disuse of fortified towns with narrow, crowded streets and high walls; and, above all, the vastly improved drainage, which has been actually caused of late years by the morbid increase of the population itself.

If we reflect that in the reign of Edward the Third the population of England was probably under six millions, it is easy to perceive that, as

a country, England could not be more than half cultivated and half drained. There were at that time nearly eight millions of acres of township lands, held in common, always in the state of pasture, to which little in the way of improvement was done. The forests and chases, belonging to the crown and the nobility, were also much more extensive, and so were their parks, where game of all kinds was the chief food of the higher orders. Hence, in all the more level parts of the country, there existed extensive fens, lakes, tarns, and meres, which were the resort of the heron, the egret, the mallard, the widgeon, the teal, the bittern, and the red-shank, then all highly prized as game. That this undrained state of the country, however it might add to the sport of the privileged classes, seriously affected the health of its inhabitants, cannot be doubted. Tertian, quartan, and quotidian agues, with all the species of marsh fever, were then common; whilst the constant use of salted meat, and salted or pickled fish, in Lent and on fast-days, joined to a total neglect of vegetables and fruits, together with the custom of giving highly spiced drinks, compounded of wine, with the richest flavours of the East, under the names of hot and cold tankards, hypocrasses,

possets, &c. &c., produced scorbutus, surfeit, and hepatitis, in their worst forms. Hence the disease called "leprosy" was then not uncommon; and all the forms of ague were so prevalent that few persons entirely escaped them. If to this we add the barbarous state of medicine and surgery, which at that time probably killed as many as they saved; and the total want of ventilation in the ancient castellated and fortified towns, we see, at once, that the value of life, on the average, must have been comparatively less than now. There was no privation; but there were mistaken modes of living, and excess in plenty. There was also more exposure to weather, from a want of many of the convenient inventions of modern times; and when disease had once made a lodgement, there existed no curative science to check it. Small-pox, measles, scarlatina, and the other diseases of infancy, were aggravated, rather than alleviated, by the absurd methods of treatment in vogue; and what privation now does, surfeit then did; so opposite were the diet and modes of living.

It is a curious but an undoubted truth, that many parts of the United States of America afford something like a parallel to this state of affairs at this day, though not an exact one.

There is the same solid manner of living, to a great extent, not accompanied, however, by the same neglect of fruit and of vegetable diet; and the country is in the same undrained state as all new countries, to a vast extent, must necessarily be. In the cities and towns, however, of the United States, the inhabitants enjoy most of the advantages of modern civilization. Their streets are wide and well drained, and medicine and surgery are just as advanced as in Europe. But is the value of life in these states equal to that of life in England? By no means. The statistics of the United States are carefully enquired into and freely published, and the results are the following; the causes assigned for the difference by others, being the same as those now assigned:

PERSONS LIVING IN UNITED STATES.		ENGLAND AND WALES.
Under 5 years . . .	1744	1324
5 and under 10 . . .	1417	1197
10 . . 15 . . .	1210	1089
15 . . 20 . . .	1091	997
20 . . 30 . . .	1816	1780
30 . . 40 . . .	1160	1289
40 . . 50 . . .	732	959
50 . . 60 . . .	436	645
60 . . 70 . . .	245	440
70 . . 80 . . .	113	216
80 . . 90 . . .	32	59
90 upwards	4	5
	10,000	10,000
Average age of all,	22 years 2 months . .	26 years 7 months.
Above 15 . .	33 ,, 6 ,, . .	37 ,, 5 ,,
Above 20 . .	37 ,, 7 ,, . .	41 ,, 1 ,,

These returns, which are beyond all question a near approximation to the truth, appear to the author to settle this question beyond all further cavil or dispute.

No one can be found hardy enough to contend that the pressure upon the citizens of these states, where taxation is a trifle and food plentiful to exuberance, is at all approaching that upon the population of England and Wales, by whom the greatest part of British taxation is paid; yet we see that the want of drainage, and the vicissitudes of a variable climate, are sufficient to shorten life, despite all the advantages of plenty, and ease, and comfort, both for body and mind.

With respect to the diminished consumption of malt, the almost total disuse of domestic brewing amongst all classes, and the falling off in the *malt duties* of *more than a half* during the last three-quarters of a century, are facts so indisputable as only to need to be stated; and the same is true of wine. In 1795 the import of all kinds of foreign wine into Great Britain and Ireland was 7,021,770 gallons, paying a duty of £1,430,722. In 1850, the import was only 6,448,817 gallons; giving a revenue of £1,824,457. That these results, placed in juxtaposition with the recent strides of population, are in strict accordance with the theory here prepounded, is to

the author sufficiently apparent. Let us now see what the population of England is in proportion to its contents in square leagues. It will be found that these results accord with all that has been laid down as probable to vary that proportion either in one direction or another. It will be found to be less than the proportion in Ireland; less than in China; less than in the cultivated parts of Hindostan; but greater than in most other parts of Europe.

The area of England *approximates* to the contents of a triangle, the base of which is drawn from South Foreland in Kent to Land's-End in Cornwall; the sides by two lines commencing in these places, and meeting at Berwick-upon-Tweed. Of this figure the base is 340 miles; the eastern side 345 miles; the western side 425 miles. This, however, gives an area below the truth. A more minute calculation has determined that the area of England is 37,784,400 acres, or 59,053 British square miles. The result is as follows:—

ENGLAND.

Area in miles.	Population.	Persons to a square league.
59,053	14,000,000	2,118

It is to be observed, however, that the proportion of uncultivated land in England is less than in almost any country, and is believed not to exceed *ten millions of acres;* and that agriculture is carried to a high pitch of perfection.

In Scotland, where the greater part of the surface is absolutely barren, and from which a constant emigration goes on, the population is as high as *seven hundred persons* to the square league—an immense population for a country consisting principally of moor and mountain, and not much below that of the South of France, where all is fertility and beauty, and where the products of the soil grow almost spontaneously.

We now turn to the European Continent, where we shall find similar causes producing similar results. Looking first at the North of Germany, we shall find the food of the people poor, the country varied and often barren, and the population great. As we approach the richer provinces of Bavaria, and the regions nearer the Rhine, we shall find the population more moderate. When we examine those countries which are eminently rich and fertile, and where the *olive* forms a portion of the food of the people, as in Italy and France, we shall find the population lowest of all.

Taking Bohemia first of all, we see a region by no means naturally fertile and poorly cultivated, often mountainous, and of variable and cold climate. The principal food of the inhabitants consists of barley, oatmeal, potatoes and milk; even beer not being a general beverage, and for the most part reserved as a luxury for holidays —and what is the population? The proportion to the *German square mile*, which is equal to about *twelve* British square miles, is no less than 3,885.

In Silesia, where the climate is much milder, the country fertile, and the corn crops greater, but the people poor and poorly fed, a similarly heavy population presents itself; the population to the *German square mile* being as high as 4,090. In Austria Proper, the greater part of which is much less fertile, the population is of course much below that of the fertile province of Silesia. It is, however, very high, amounting to no less than 2,837 persons to the *German square mile*. The poor and for the most part arid and barren kingdom of Prussia, affords results precisely similar. The kingdom is divided into Eastern and Western Prussia, and each of these divisions contains two Governments. The population is as follows:—

		To the German mile.
Eastern Prussia.	Government of Konigsberg	1,542
	Government of Gumbinnen	1,495
Western Prussia.	Government of Dantzic	1,875
	Government of Manesiwerden . . .	1,244
		4) 6,156
		1,539 average.

A dense population for the most barren *level* country in Europe, and not much below that of the fertile and comparatively rich kingdom of Bavaria, the average population of which is 1,980 persons to the German square mile, according to M. Hassel's tables.

We now arrive at a country, the statistics of which are accurately known, and the results of which statistics strongly confirm the truth of this theory—that is to say, France. Of this, on the whole beautiful and great country, the climate and soil both vary, and we have on one side the rich vineyards, the smiling fields and fertile plains of Languedoc, and on the other the poor soil and harsher climate of Brittany. As soil and climate vary, so in some degree does the living of the people. In the South of France there is nothing but the appearance of ease and wealth. In the North we detect something more like the rags and wretchedness of Ireland; though in no part of France is the food of the people reduced to potatoes and a total absence of butchers' meat.

In no part of France is the poor peasant debarred the use of the oil of the olive, the egg for his omelette, the pullet for his pot, and occasionally beef or mutton for his *soup* or *bouille*. As for eggs, the quantity produced in France is prodigious. Of those imported into England, a large portion comes from France; and the import into England has amounted in a year to sixty-nine millions, which at two-pence per dozen duty, yielded £24,048. This was in 1836. In 1851, the import of eggs, chiefly from France, was 115,526,235, duty £42,149. Such being the difference between the southern and the less genial departments of France, the same differences as to density of population which other countries exhibit, are exhibited also here.

In the poorer Departments the population is considerable. In the rich Departments it is low. At these results M. Malte Brun, who is one of those writers who constantly regard a dense and redundant population as evidence of the wealth and industry of the country where it exists, without adverting to its causes, is sorely scandalised. He rates the inhabitants of the South of France for their dearth of children, which he terms "poverty," though he admits that the country is rich and fertile beyond description; and not con-

tent with this even, is inclined to blame the *Government;* though as to the means by which a Government could cure such an evil as this is, he affords no clew! His observations are as follow:—

(*Malte Brun, Geography,* vol. viii, p. 273.)

"We have had occasion to observe the mild climate, the romantic sites, and the remains of Roman power in the twenty-eight Departments that form the southern region of France. The inhabitants, it has been seen, are favoured by nature: the different productions are admirably suited for their country: with the exception of the mountains, the soil is everywhere fruitful. But if the population be compared with the surface, it will be found that the results accord ill with the natural advantages of the same vast region, which makes up more than a third part of the kingdom. The extent is equal to 9,000 square leagues, the population to 8,404,000 individuals; thus the number of inhabitants to every square league does not amount to *nine hundred and thirty-four*—a result below the mean number in the other divisions of the same country. Such facts are not without their value (*tres veritable*—M. Malte Brun): if the *best*

and most fruitful part of France is comparatively *poor* and ill peopled, it proves how much the munificence of Nature may be surpassed by the industry and resources of man. Government, too, may derive an important lesson from the same fact. It may thus be taught to appreciate the elements of its wealth and power. Thirteen Departments make up the Western region; the population relatively to the surface is greater than the last, for 5,423,000 inhabitants are scattered over a surface of 4,200 French leagues; consequently the average number to every square league exceeds 1,290. Still the advantages of education are little known in the Western region: in that point it is almost on a level with the preceding. How much, then, might population and wealth be increased if ignorance no longer formed a barrier to the expansion of industry!"

The truth is, that the really rich Departments are the least populous, and the poorest most populous—the riches in the one instance keeping down population, and the poverty in the other instance urging it onwards. Let us contrast the poorest and the richest provinces of all France, and the result will be strikingly apparent.

The poorest of the French provinces is unquestionably Bretagne, or Brittany. It is described by some travellers as reminding them of *Ireland.* It accordingly presents all the indications of poor living, squalor, rags, miserable habitations, multitudes of half-naked children, and numerous mendicants or vagrants. Let us see how Bretagne, or Brittany, stands with regard to population and we shall find it giving what M. Malte Brun would call "indications of industry and wealth." Strange infatuation!

POPULATION OF BRETAGNE, OR BRITTANY.

Departments.	Population to the square league.
1. Of Finisterre	1,376
2. . Coté du Nord	1,470
3. . Le Mortcham	1,157
4. . Isle de Vilaine . . .	1,661
5. . Bas de Loire	1,405
	5) 7,069
Average to the square league . .	1,414

The richest province perhaps of France is the beautiful province of Languedoc, with its well-known salubrious towns of Montpellier and Thoulouse. The climate is the finest probably in Europe. The soil is excessively fertile, and

the vine and the olive vie with each other in exuberance of fruit and beauty of growth. Here is everything to sustain, to lengthen, and to cherish life; everything to afford plenty, ease, and comfort to the inhabitants of this favoured region. Yet, if we inquire into the numbers of the inhabitants, we shall find them far below those of squalid, poor, and comparatively sterile and inclement Brittany. And what is the difference between them? Wealth alone. The laws, the language, and the people are the same.

POPULATION OF THE PROVINCE OF LANGUEDOC.

Departments.	People to the square league.
1. Of Ardesche.	1,120
2. . Aude	794
3. . Gard	1,103
4. . Herault	1,029
5. . Upper Garonne	4,153
6. . Upper Loire	1,105
7. . Lozere	521
8. . Tarn	1,083
8)	7,908
Average to the square league. . .	988

The population, then, of the richest, or one of the richest of the French provinces, is not much more than two-thirds of that of the poorest,

and thus will it ever be found, whether different countries, or different provinces of the same country, be compared with each other.

That this difference of numbers is caused by the different procreative powers caused by the difference between wealth and poverty, is apparent in the following statements. In his work (excellent in many respects) on "Over-population," published by Mr. William Thomas Thornton, in 1846, occurs the following passage:— "The tendency of misery to perpetuate and extend itself is strikingly illustrated in these manufacturing districts (the author is speaking of France); whilst, in other parts of France, the condition of the people is continually improving; thereby showing that population, although increasing as the resources of the country become developed, increases more slowly than the means of subsistence. Here, on the contrary, where multitudes are suffering extreme privation, the means of subsistence are no sooner increased than a corresponding increase takes place in the number of persons to be subsisted; and every addition to the fund for the payment of labour, instead of benefiting the actual dependents on that fund, *only calls more of them into an equally wretched existence.* In the De-

partment du Nord, which contains most of the principal seats both of the French cotton manufacture and of French destitution, population increases at a rate considerably more than double the average rate of the whole kingdom, or about *thirteen per cent.* in ten years."

This last assertion Mr. Thornton seems to have quoted from Laing's Prize Essay on National Distress, part ii, chap. 2. On reading this extraordinary passage, it occurred to the author, that, if it could be shown that the average age of marriage in this Department did not much differ from that of the rest of France, it would put to rest the unfounded notion that early marriages have any sensible effect upon the numbers of a population. And from a knowledge that French statistics were, in many respects, more elaborate and minute than those of any other nation, he also hoped that means might be found in the French census tables to ascertain the facts. With this view, he extracted the passage from Mr. Thornton's Treatise, and transmitted it to one of the highest French authorities on such questions, M. Villermé, with a letter explanatory of his views and wishes. The following is M. Villermé's answer to this application, with which he unfortunately could not comply. It com-

pletely proves, however, the morbid rate of increase of people in the French manufacturing Departments; although that rate is not so extraordinary as Mr. Laing, and after him Mr. Thornton, seem to have supposed.

"Paris, le 8 Aout, 1847.

"Je ne connois point l'ouvrage de Mr. Thornton 'Sur l'Accroissement de la Population.' Quant à notre Département du Nord, c'est bien un de ceux qui offrent de plus de manufactures, surtout de manufactures de coton, et en même temps une très forte proportion de pauvres; mais l'accroissement de la population n'y marche pas aussi vite que le pretend M. Thornton. En voici la preuve dans les chiffres officiels (je ne dis pas exacts) du nombre de total d'habitans donné par chaque dénombrement.

	DEPARTEMENT DU NORD.	FRANCE ENTIERE.
En 1820	905,764	30,451,187
1826	962,648	31,845,428
1831	989,938	32,560,934
1836	1,026,417	33,540,910
1841	1,085,298	34,213,229
1846	1,132,980	35,400,486

d'où résulterait l'accroissement suivant de population dans chaque periode decennale.

	DEPART. DU NORD.	FRANCE.		Et non pas de plus de
de 1820 à 1831	0.093 . .	0.069	au lieu de plus du double, la difference est de	24 . 138
de 1826 à 1836	0.066 . .	0.053		13 . 106
de 1831 à 1841	0.096 . .	0.051		45 . 102
de 1836 à 1846	0.104 . .	0.055		49 . 11

M. Villermé then goes on to say, that although the French system of Registration is better than ours, and that from it, possibly, might be evolved the average age of marriage of the two sexes, yet the labour of doing so would be too considerable. The results given by M. Villermé, however, sufficiently bear out Mr. Thornton's general views. In these four Departments every added pound for the payment of labour only causes another *morbid* or *over*-increase of population. It does so, because it is not enough to put the *Departement du Nord* into the same plentiful way of living as obtains in the pastoral provinces of *Languedoc*. Hence it only becomes a fund to support an addition to the poor population, whose increase it was powerless to check: for in one or other of these ways every additional fund for the payment of the industrious classes must act. If large and generous, it will check the march of population. If poor and insufficient, it only affords a further pittance for the support of more wretchedness.

Italy is unquestionably, in fertility as well as climate, the finest country in Europe.

But where God has been most beneficent, man has been least so; and as Italy, in natural advantages, is the finest, so, in regard to its government, it is the most unfortunate of European States—

divided and subdivided amongst a variety of petty tyrants, all hating each other, and hated by their own subjects, industry is paralysed, trade almost destroyed, agriculture depressed, and universal languor prevailing throughout an idle and ignorant, or a vitiated and enervated population. Yet such is the natural wealth of the country, that, though afflicted with all these political evils, the Italians cannot, in point of comforts of living, be fairly said to be badly off, or in a state of suffering. There is much apparent poverty, much squalidity, but little starvation, in the proper sense of the word. Its condition is to be deduced clearly from its unfortunate political situation; and under a good and united Government, no one doubts that Italy might be made one of the finest and happiest countries on earth. At present all is laziness, superstition, and debauchery: a political renovation would change this into activity and consequent wealth.

It is difficult to say what is the population of Italy as a whole. Looking, however, at the facts, as shown in the different States, it is not great, considering the immense advantages of the country, which is a natural garden throughout. It is quite certain that Italy could produce food for many more inhabitants than are now,

or probably ever were, congregated upon her soil.

The Lombard-Venetian kingdom is one of the most populous portions of Italy. It contains the great trading mart of Venice, and many of the Universities—Milan, Pavia, Padua, &c.; and has been, therefore, more liable to increase by immigration than many other provinces. Its people are, however, by no means numerous, when compared with the surface; that surface being of unrivalled fertility, and under a climate the most delicious.

The following table shows the proportion to the *geographical square league*, which, it must be remembered, is about *one-seventh larger* than the ordinary square league:—

LOMBARD-VENETIAN KINGDOM.

Square geographical leagues.	Population.	Persons to the league.
2,368	2,237,301	1,840

This, when the difference of the geographical league is taken, is a population a little above the average of France. This, however, is far above that of most of the other States; indeed,

above that of all the extended States. *Lucca, San Marino,* and *Massa,* are little more than *towns,* with a small territory, and not States. The next great territory is that of the Church. Its population is shown in the following table :

STATES OF THE CHURCH.

Square geographical leagues.	Population.	Persons to the league.
2,257	2,590,000	1,147

The next great territory is the Duchy of Tuscany. This fine country contains the beautiful cities of Florence and of Pisa, and the port of Leghorn. Its population is as follows :—

GREAT DUCHY OF TUSCANY.

Surface in geographical sq. leagues.	Population, 1826.	Pers. to each league.
1,098	1,275,000	1,161

The dominions of the King of Sardinia, including Piedmont and the Island of Sardinia, are much more scanty. The two give the following results :—

PIEDMONT.

Area in geographical sq. leagues.	Population.	Persons to each league.
2,635	3,399,600	1,260

ISLAND OF SARDINIA.

Area in geographical sq. leagues.	Population.	Persons to the league.
1,100	490,087	445

The island abounds in cattle, some of which only are domesticated, the rest running half wild over the mountainous part of the island. This is the case not only with horned cattle, but with the swine and even with the horses. The cattle upon the whole are supposed to be three times as numerous as the inhabitants.

The population of the Duchies of Parma and of Modena give similar results :—

PARMA.

Area in geographical sq. leagues.	Population.	To the league.
288	440,000	1,180

MODENA.

Area in geographical sq. leagues.	Population.	To the league.
260	350,000	1,346

Such is the truth as to the population of the fine and rich countries of France and of Italy, and such is the state of the population in all countries where the vine and the olive abound, and where the juice of the grape and the rich oil of the olive form a portion of the daily food of the people, together with such animal food as they can procure, or are in the habit of using. Spain and Portugal being mountainous countries, and also countries where grazing is practised in a large proportion, as compared with agriculture, are still more thinly peopled.

SPAIN.

Area in square French leagues.	Population.	Persons to the league.
23,867	13,901,000	580

PORTUGAL.

Area in square French leagues.	Population.	Persons to the league.
4,922	3,214,000	653

In Italy it has been ascertained that the average number of births to a marriage are *three* only, a low proportion, and below that of almost any other country—*Southern France*, perhaps, excepted.

We now turn to a country less favoured than the foregoing as to climate, but fertile in a high degree, and cultivated with great care—Holland and Belgium—as constituting the former kingdom of the Netherlands. Of these countries it may be said, that as Italy is the *natural*, so they are the *artificial*, garden of Europe. Destitute of mountains or even hills, they present one vast plain, covered with alternate arable land, and meadow and pasture of inexpressible richness. The vine is cultivated, but the wine made from its fruit is indifferent: wheaten bread, milk, cheese, and animal food, are the nutriment of the people; with such a proportion of esculent vegetables as they themselves choose to add. Malt liquor is also in use, as well as the less

wholesome distillation from grain, to which the country gives its name. The population of this wealthy country is, as nearly as possible, one person to each *hectare* of land. This, in English measure, is about *two hundred* to the square mile, or *eighteen hundred to the square British league only;* and this in a tract, every foot of which is under culture. The number of births to a marriage is *four* upon the average, with a fraction more. Immigration here has done much to swell the population. The great trading marts of Holland are filled with strangers. In Belgium also foreign settlers are numerous; yet such are the results.

Looking next at the countries in the North of Europe, that is to say, at Denmark and Sweden, we find the same law apparent. Both are grazing countries more than agricultural, and in both the population is moderate, making proper allowance for the mountainous tracts which prevail in both. In Sweden, it has been proved by the Tables of Mortality that the population *decreased* rather than increased down to the year 1763. Since that time agriculture has been pushed, to the exclusion of grazing cattle, especially in Gothland, and there the population has increased decidedly since 1763.

In Denmark, agriculture is more prevalent than in Sweden, and less animal food eaten upon the whole; the population, however, is moderate, being *six hundred and seventy-seven only to the square league.*

Turning next to the Continent of America, we shall find the same law evidently prevailing. In the Brazils and Mexico, where cattle are a large part of the wealth of the country, the population is thin and scattered. Nor is the rapid increase of the United States any difficulty, though much stress has been laid upon it. That it is the result of a constant immigration into that favoured land from all the European countries is sufficiently evident; and this may be proved by a comparison of the number of marriages and births in those towns where emigrants in great numbers do not resort, when it will be found that the increase is little or nothing. Thus, in Portsmouth, the capital town of New Hampshire, and *not* a rich town, the returns are as follow:—

	Marriages.	Births.	Proportion to a Marriage.
1804 to 1809.	381	1,702	4 and a fraction.

The return for the *rich* city of Philadelphia shows thus :—

	Marriages.	Births.	Proportion to a Marriage.
A. D. 1818.	792	2,221	(Less than) 3.

In addition to this, taking from Mr. Barbour's publication the ratio of population for the little parish of Hingham, Massachusetts, the result is nearly the same. In fifty-four years there were 2,247 births, 1,113 deaths, and 521 marriages. This makes the proportion of births less than four to each marriage, from which must be deducted a large portion of the deaths. Looking at the results of the general American census, both for 1800 and 1810 (before immigration was so extensive), it appears that the number of adults above sixteen years of age was equal to the number of children below that age; which, as Mr. Godwin observes, "shows no rapid increase by procreation; as, if so, the children ought to have *far outnumbered* the adults." On the other hand, it is evident enough surely, and needing little reflection, to see, that in a country where *above a hundred thousand emigrants enter*

one port alone in a year (New York), the progress of population must, from that cause alone, be rapid indeed!

Upon a review of the whole statistical details of this chapter, the results appear to be so striking that it is difficult to avoid the conclusion, that as the food of a people degenerates from a preponderance of animal nutriment to a vegetable diet, in that *ratio* the population increases and thickens; and that, as this description of aliment is still reduced lower, first, by the denial of all animal food; next, by the denial of the products of the olive and the vine; and, lastly, by the change from a wheaten or barley diet to one consisting chiefly of rice, or of the potato—in that same *ratio* will the population still go on increasing and thickening, until it has reached the verge of constant starvation, and is perpetually thinned by periodical famines and epidemic fevers, the certain consequences of this state. Nor does it appear to make any difference whether this mode of living is induced by climate naturally, as is perhaps the case in certain countries, or artificially by superstition, or by the relative position of one part of society to that of another part, as is perhaps the case in other countries. Thus, we see the most dense

and redundant population in those immense regions, comprehended under the term China, in Japan, and generally throughout the peninsula of Hindostan, where the climate has almost forced the natives upon a vegetable diet and upon the cultivation of rice almost solely, and where superstition has completed what the climate probably originated. Next to this in density, however, we find the population of Ireland—which is essentially and naturally a pastoral country, and where, were it not for an artificial and depraved state of society, which has gradually compelled the mass of the inhabitants to a poor manner of sustenance, not arising out of any necessity of soil and climate, the population would have been moderate instead of redundant, and wealthy instead of poor.

Nor, as it seems to the author, is there the slightest difficulty in accounting for the growth of the population of the United States of America, if the circumstances of the last sixty years be impartially considered with a view to this question. It is true that, generally speaking, the circumstances in which the inhabitants of the older and more settled portions of these regions are placed do not conduce to rapid increase; and we have seen accordingly, that, looking at the statistics

of such towns as have not been much subjected to the effects of immigration, the increase has not been great, nor anything beyond what might be expected, under the peculiar views of the phenomena of population now brought forward. To account for the population of the Republic of the United States, we must look first to their importation of negro slaves, which went on throughout the Southern States during the whole period of their colonial existence; next, to the emigration from the Mother Country to the Colonies, which was always in operation to a greater or less extent, and lastly, to the increased emigration which has, during the sixty years of their independence, been flowing into the territories of the Republic from almost every country in Europe. In addition to the natural increase of the earlier settlers in Virginia, the Carolinas, and the Southern Planting States, a large coloured population has gradually been created, originating in the commerce between the convicts and other European races and the negroes; and to this source of increase the influx of new free English and Irish settlers was constantly adding another and healthier cause of progress in numbers. At the time of the declaration of Independence, it was believed that the Republic contained fully

three millions of persons, of all ages. If we calculate the effects of the constant immigration into the States, which has gone on throughout the whole seventy years that have elapsed since the conclusion of the American struggle, we shall find no cause to wonder that the numbers of the Republic have risen to their present amount. Taking the immigration drawn into all the States from all parts of the world in a lump—English, Irish, Scotch, Germans, Dutch, Mexican Spaniards, and Frenchmen, not forgetting Jews, we can hardly exceed in taking an average of thirty thousand persons per annum. This alone is an addition of two millions one hundred thousand, half of whom may be still living. When, however, it is considered that these emigrants nearly, if not altogether, consist of young persons, adults of both sexes, and that they may be safely held to be placed under circumstances which would render them both desirous and fully capable of immediately and rather rapidly adding to their numbers, all wonder ceases, for the stimulus to population in such a case is easily seen to be enormous. The persons emigrating are principally of that class, where fecundity is rendered certain by circumstances—young men and women in the prime of life, in full health, having suffered probably some privations, and generally driven by

narrow circumstances, and a hope of bettering their condition, to seek an active life of enterprize and industry, with scanty means, but in a bountiful, plentiful, and rich country. In a condition like this, each year of emigration would be felt, not only in its mere addition, but in an immediate increase by propagation, stretching probably over the next ten years, or next fifteen years. Repeat this year after year, at the average rate assumed, or at a rate much below that, and the reduplication will be found to be enormous. With these observations the author leaves this division of his subject in the hands of his readers; contenting himself merely with adding the numbers of emigrants that have left England, Scotland, and Ireland, in each of the ten years, from 1840 to 1849, inclusive.

In	1840	the emigrants were 30,743
	1841	 118,592
	1842	 128,342
	1843	 57,212
	1844	 70,686
	1845	 93,501
	1846	 129,851
	1847	 258,270
	1848	 248,089
	1849	 299,498

When it is considered that this enormous efflux of people is now upon the increase, and must, as far as the agricultural population of Great Britain is concerned, be expected to increase still more, and when to this we add the certain fact that the great majority of these emigrants ultimately settle in the United States of North America, there is needed nothing further to account for the growing strength of these states; including, with those immense yearly additions from the British Isles, the emigrants from the rest of Europe, who now number annually many thousands. That to emigration the spread of population in the North American Republic is to be ascribed, is evidenced in the retrograde state of the population of Mexico, to which, owing to the unhappy state of society there, few strangers resort. In Mexico, the people derived from the Spanish stock, lapped in luxury and laziness, are, like the Turks in Europe, supposed to be slowly decreasing. The annexation of a large portion of the Mexican territory to the Republic of the United States, will probably obviate in part this decadence, which nothing but the introduction of Anglo-Saxon industry and laws can avail to cure. Had Mexico been left to herself, she must have again

fallen into the hands of a coloured population, from the gradual extinction of the pure European portion.

Upon the whole of the foregoing considerations, as detailed in all the preceding chapters, it can hardly be denied that we have now arrived at the proof of a high probability that the theory of population, which it is the aim of the present treatise to establish, is true. Examining, in the first place, the causes of the increase or decrease of limited bodies of men, of whose peculiar mode of living we have the means of obtaining indubitable general information, it appears to be clearly made out, that wherever such men are kept in the plethoric state, they cannot keep up their own numbers, much less increase and multiply. On the other hand, it seems equally clear, that, in the instances in which a great increase has taken place, which, be it observed, are rare, this increase has invariably arisen out of a state of depletion, hardship, or low feeding. This is the state of the evidence as far as it has been practicable to collect it with regard to limited numbers of persons, with the routine of whose lives we have the means of being generally acquainted: in the statistics of nations the same law of Nature is equally and beautifully manifest.

Going through the principal nations of the globe, of which we can be said to possess anything like intimate knowledge, we trace the same law through all its varieties as accompanied and caused by the variations in the mode of living, arising out of the difference of climate, civilization, and religion. Beginning with those countries in which the pastoral life, and subsistence by the feeding of cattle, form the characteristic of the people, we find the population thin in the extreme; as in the grazing portions of the Russian empire, and those other countries where either soil or climate, or the customs of the inhabitants, or all three, discourage agriculture and tillage, and tend to the production of animal food. Passing from these to countries and nations where tillage and the growth of edible grain are mingled with the breeding and grazing of cattle, we see a uniform and most marked increase in the population, as measured by the square league or mile; but we still see the population within bounds, and far below that of those countries in which a food, scanty in itself, and almost wholly vegetable, prevails. In many of those hotter climates, also, where the effect of the burning sun upon the herbage is such as naturally to check in a great measure the fattening of sheep or oxen,

we discover that the deficiency of rich food is made up, *first*, by the peculiar fruits which encourage the breeding of swine and of poultry; and, *secondly*, by the rich and oleaginous species of nourishment afforded to the natives of such regions by the fruits themselves which are peculiar to the climate. Thus, in Spain, in France, in Italy, and in Portugal, though the fattening of oxen and sheep is less easy than in the more temperate climates, yet the immense quantities of poultry and of swine, and also the use of the rich and luxurious products of the olive and the vine, make amends for the partial deficiency of animal food. In these countries the produce of domestic fowls, and consequently of eggs, is known to be enormous, as indeed the extraordinary quantity of the latter imported from France and Belgium into this country (100,000,000 in a year) amply proves; and if to this we add the constant use of olive oil and of wine as articles of daily diet, we shall easily perceive that, though the fat beeves of more temperate countries are wanting, there is yet no want of rich nutriment to the inhabitants, nor of plenty of means to maintain that plethoric state of the frame which seems necessary to moderate the prolificness of all animals, man

not excepted. Carrying round our gaze from one part of the globe to another, we at length discover that enormous population is attendant only upon a nutriment totally vegetable, and of the thinnest and poorest kind, and that not in abundance, but the contrary. We find enormous swarms of mankind covering certain regions: we mark these phenomena in Hindostan, in China, in Japan, and latterly in Ireland; and on inquiry we find that these people are destitute of the olive and the vine; and not knowing what the taste of animal food is, subsist for the most part upon the inunctuous fruits, upon fish, and the less farinaceous grain and roots—upon the products of the sea and rivers, upon rice, upon tea, upon the potato, and upon the more acid descriptions of fruit.

Thus far, then, viewing the effects of diet upon all practicable scales—viewing them as exhibited in the condition of nations as well as of small bodies of men—we perceive the same laws manifesting themselves throughout, in all their various degrees and modifications; shade following shade. We see luxury not only forbidding increase, but causing rapid decrease; we see a more moderate, but still a gross and luxurious mode of subsistence, producing the like effects in

a mitigated way. Going further down the scale, we find an imperfect supply of nutriment immediately followed, and always accompanied, by an increase of fecundity and numbers; and, whenever we see this applied to an entire population, we witness rapid increase, and all the fearful effects of over-population going on together with increasing pressure.

It is impossible to conclude this chapter without a more emphatical reference to Ireland, as exhibiting, not only the PRINCIPLE OF INCREASE, as caused by miserable diet, in full action, but also the TERRIBLE EVILS resulting from it, when pushed to extremes. Here we see a country, the inhabitants of which have been, through many generations, driven to subsist upon a wretched and watery root, unfit for human food when taken alone, exhibiting "surplus population" to a high degree. In 1846-7, we see the miserable root on which the majority live, destroyed by a widely spread disease; and we behold this destruction of the national aliment (if aliment it can be called) followed by a famine, not to be matched in its terrible effects either by those to which India or those to which China has been subjected. In short, we witness the awful event of *the disappearance of* A MILLION

AND A HALF OF PEOPLE, of all ages, who have either perished directly of hunger and cold; or of fever, the consequence of dearth and exposure; or who have fled to other lands to avoid perishing from want of food. As the remoter consequences of this catastrophe, we see, at this moment, the whole framework of society in Ireland broken to pieces; the desertion of large districts; the forced sales of mortgaged estates; and the establishment of a system of emigration which bids fair to strip the island of its best inhabitants—the active, enterprising and industrious. It appears to the author that they, who are not convinced, by spectacles like these, both of the truth and importance of the theory here demonstrated, must be impervious not only to the force of reasoning, but to the harder lessons of bitter experience.

CHAPTER VI.

MINOR PROOFS NOT INCLUDED IN THE FOREGOING CHAPTERS.

In prosecuting an inquiry like the present, it will always be found that there are minor facts and arguments bearing directly upon the questions at issue, but which cannot easily be classed under any general head, nor so managed as to be made a part of the main stream of the argument. Of some of these, which, though they go directly, and, it is hoped strongly, to prove the truth of the law regulating population here attempted to be established, are yet in their nature insulated and distinct, it is now intended to treat.

In the first place, it may be remarked, as a proof of the continual care taken by Nature to preserve the species, that, though the prolific state may have apparently ceased for many

years, yet immediately preceding its real and actual cessation, offspring, as a last effort, are very frequently produced; and hence, just as fruit-trees, on the year before they die, commonly bear a large crop of fruit; so women, frequently, who have been unprolific for many years, bear a child, not unfrequently twins, towards their advanced age. Upon this, as a fact familiar to all medical persons and physiologists, it is needless to insist further. Another striking corroboration of the law here endeavoured to be established is the fact, that childless couples, who have been accustomed to full and luxurious living, very frequently have children after being reduced in their circumstances, and unable to live as before. Of this undoubted fact every reader almost will, in his or her own experience, be able to point out examples; and therefore it would be useless to dilate upon it. The constant occurrence of the fact, however, and its causes may be shown in a different manner—it being a truth quite capable of proof upon an extended scale, that prolificness always is a concomitant of a change in the mode of living from plenty to the contrary. It was probably from this being the case, that the observation took its rise, which asserts that "more children

are born in winter than in summer!" A singular remark, but not devoid of truth—applied, as it no doubt was, to Catholic countries. The cause is stated by Swift in one of his humorous allusions as follows:—"We are told (says he) by a grave author, an eminent French physician, that fish being a prolific diet, there are more children born in Roman Catholic countries about nine months after Lent, than at any other season." Now, although this is quoted by Swift in one of his ironical Treatises—("A Modest Proposal to the Publick for preventing the Children of the Poor being a Burthen to their Parents"—*vide* Swift's works, vol. ix)—there is no reason to suppose that fact has not been observed; and Lent falling always in Spring, the origin of the proverb as to the increase of births in winter is evident enough. The observation of the French physician is, in truth, only a repetition of the ancient notion as to a diet on fish being a cause of prolificness; which no question it is—not because the diet is *fish*, but because the diet is *poor*. The best proof, however, that seasons of scarcity and seasons of prolificness are almost synonimous terms, is supplied by the late Michael Thomas Sadler, in his work on Population. In volume ii of that work, he has con-

structed, amidst many others, the following tables, which certainly, if ever anything was demonstrated, demonstrate this beyond a doubt. The wonder is, how the acute mind of Mr. Sadler could contemplate these results, without being led by them to discover what is really the law by which population is regulated. His failing to do this is only one more example of how apt preconceived theories are to distort views of evidence, even in the strongest minds. As a contradiction of the theory of Mr. Malthus—whose views Mr. Sadler was eager to combat—the results, as stated by him, are conclusive and invaluable. As a help to his own theory, they are quite nugatory. With the views of this question, now attempted to be established, they perfectly accord. Mr. Sadler, it will be seen, has taken three separate instances of years of plenty either following or preceding years of scarcity; and by taking the births through a certain consequent period after both years, the result is, in all, that the conceptions in the years of dearth exceed those of the plentiful years, although the marriages of the years of plenty, are, as might be expected, for the most part, more than those of the years of pressure. In each of the years compared, the number of marriages and conceptions,

and the prices of wheat, are given: the reader will remark how very curiously the results correspond.

In the first Table, No. 1, the year of scarcity precedes that of plenty. The marriages of the year of dearth are, very naturally, much fewer than those of the plentiful year, and yet the conceptions are more; thus shewing that an increase in the means of comfortable and full living, immediately *checks* population.

TABLE, No. 1.

Years.	Marriages.	Conceptions.	Price of Wheat.
			£ s. d.
1796	73,107	268,088	3 17 1
1798	79,477	266,769	2 10 3
Difference,	+ 6,370	— 1,319	£1 6 10

In the next table, No. 2, the year of plenty comes first, and is a precursor to that of dearth. In the year of dearth, it will be seen there is a striking diminution in the number of marriages. They fall off by a whole *eighth*. Despite of this, however, there is great increase of conceptions, amounting nearly to a twelfth additional; thus

proving that a diminution of the means of living comfortably immediately *stimulates* population.

TABLE, No. 2.

Years.	Marriages.	Conceptions.	Price of Wheat.
			£ s. d.
1799	77,557	254,870	3 7 6
1801	67,228	273,837	5 18 3
Difference,	— 10,329	+ 18,967	+ £2 10 9

In the Table, No. 3, the year of comparative plenty again comes first; and in the year of dearth the marriages again diminish in number, though not in the ratio of the preceding table. The extraordinary part of this table is, however, the proof which it affords, that the conceptions accurately correspond with the prices of food. In this table the lowest price of wheat, *sixty-one shillings and tenpence the quarter*, is really a high price. According to this theory, then, the stimulus to population is already in activity; and the conclusion, *a priori*, is, that an enhanced price ought not to be followed by an effect proportionately as great as would have been, or ought to have been, the case, had the advance of

price been from a lower average. This, it will be observed, is completely borne out in the result. The conceptions do increase, notwithstanding the diminution of marriages; but in a ratio far below that of the former tables, where the starting point is from actual cheapness to dearness. The value of this result, as confirming the truth of the views now attempted to be established, must be evident to everybody.

TABLE, No. 8.

Years.	Marriages.	Conceptions.	Price of Wheat.
			£ s. d.
1815	99,944	330,199	3 1 10
1817	88,234	331,384	4 10 7
Difference,	— 11,710	+ 1,185	+ £1 8 9

To the above tables it is hardly necessary to add any further remarks. They strongly prove the pervading description of the law of Nature, that any diminution of means which tends to endanger the species is immediately met by an increased sexual fertility. It may, however, be proper to observe, that the existence of this beautiful law of Providence is also proved by

the admitted facts of the rapidity with which gaps in a population, caused by plague, or other pestilential visitations, are filled up; and of the immensely increased tendencies to propagation which medical persons testify are always exhibited by persons recovering from plague, typhus, and other contagious disorders.

These results, as given by Mr. Sadler, are corroborated completely by the returns of the Registrar General (as far as known) of marriages and births, since 1846. During the year 1846, wheat sunk down to *forty-seven shillings* per quarter on the average. Beef sold in London, at *three shillings and sixpence* per stone (8lbs.) for the very best; and the expenditure, caused by the railways in course of formation, caused a rise in wages and traders' profits. In that year, consequently, there was a marked *increase of marriages*, probably all over the country, but certainly in London, the returns for the metropolitan districts being all published and known as far as general results are concerned. The metropolitan districts are, owing to the much greater proportion of diffused wealth there, very unfavourable for such a comparison as this: despite this disadvantage, however, the results are decisive enough.

During the first quarter of 1846, the marriages, in round numbers, *increased* by a full *thousand.* In the second quarter by *eleven hundred.* In the third quarter by a *thousand.* In the fourth quarter by *four hundred.* The increase of marriages for these districts being, for the year 1846, *three thousand five hundred*—a great accession where the average does not exceed eleven thousand per quarter or forty-four thousand per annum. After such an increase of weddings, an ordinary reasoner would anticipate an increase of births during 1847. What is the result? In the first quarter of 1847 there *is* an increase of *three hundred.* In the second quarter there is a *decrease of one hundred.* In the third quarter there is neither increase nor decrease. In the fourth quarter there is a *decrease of five hundred.* Thus, in a prosperous and cheap year, an *increase of* 3,500 *marriages* is followed by a *decrease in the gross of* 600 *births;* but, deducting the increase of the first quarter a *nett decrease of* 300 *births.*

In 1847 was a sudden change to adversity and dearness. The potato-disease produced famine, and wheat rose on the average to about *seventy-two shillings* per quarter. The Bank crisis occurred in October, 1847, and caused a

panic which was followed by bankruptcy and commercial collapse that continued throughout 1848 ; during which year wheat on the average was about *fifty-two shillings* per quarter. This sudden stroke of adversity caused an immediate *decrease* of marriages, which became visible during the last two quarters of 1847; the falling off, during each, being fully *one hundred and fifty.* This diminution continued through 1848. In the first quarter of 1848, it was *two hundred.* In the second, *five hundred.* In the third, *six hundred.* In the fourth *four hundred.* In round numbers the *decrease* of marriages during the six quarters was not less than *two thousand.* What was the result upon the births; taking the three latter quarters of 1848, and the first three of 1849 ? It was this. In the second quarter of 1848, the increase of births is *five hundred.* In the third, *three hundred.* In the fourth, *two hundred.* In the first quarter of 1849, the increase of births mounts to *one thousand.* In the second, it is *six hundred.* In the third, *fifty.* Thus six quarters of famine, panic, bankruptcy, dearness, and want of employment cause a *decrease in marriages* to the extent of *two thousand;* and this decrease of marriage is at once followed by an *increase of births* to the

extent of *two thousand six hundred and fifty;* and this in the metropolitan districts, where there is more diffused wealth than in any other part of England probably.

If we compare the marriages and births of ordinary times, we get a *medium result.* In 1850, the state of the nation was not satisfactory on the whole. There was fair employment in the manufacturing districts, but competition had cut down profits in every trade, and agriculture was in a state of depression, owing to the low prices of farm produce. The cheapness of living, however, seems to have increased marriages amongst the labouring classes; and the augmentation during the last three quarters is great, being about *one thousand* for each quarter. This is exactly balanced by the increase of births for the first three quarters of 1851, which are about *one thousand* in each quarter. This indicates that the falling off of demand from the rural districts, and the decrease of profits from competition, had, during that year, affected the metropolis so as to *neutralise* the check to increase arising out of the better circumstances of 1846; whilst, at the same time, the immediate effects of the famine and crisis of 1847-8 had passed away; which accords with the facts, as otherwise known.

Suffering the foregoing considerations to rest, as all such considerations must rest, upon the good old rule of "valeant, quantum valere possunt," there is yet another proof to be adduced of the validity of the reasoning which they embody, and this of a nature at variance with all existing theories of population, and the maxims founded upon them. It has very generally and very plausibly been set down as an obvious truth, that "late marriages" are a "check to population;" and if carried far enough, with regard to the important point of delay, there can be no doubt that this is not only a truth, but a truism. Provident Nature has, however, done all she could to secure the continuation of the species against this danger; and singular to relate, but most indubitably true it is, that when marriage is delayed, fertility is increased, in the *ratio* of delay, until the point is passed after which the bearing of children becomes impossible. In order to prove this extraordinary and very instructive fact, the following table is adduced. It was constructed by Doctor Granville, and Mr. Finlayson, the well-known accountant, and is based upon the particulars of *eight hundred and seventy-six cases*, which that eminent practitioner attended as "Physician to

the Benevolent Lying-In Institution, and Westminster Dispensary." It will be observed that the cases were, in all human probability, those of females in the same station of life; all probably suckling their own children, and exposed to none of the causes of partial sterility on one hand, or stimulated fertility on the other, to which females in the more artificial stations of life are subjected.

TABLE.

SHOWING THE EFFECT THAT THE POSTPONEMENT OF MARRIAGE IN FEMALES HAS UPON THEIR ANNUAL FECUNDITY.

Ages when married.	Average of births to the year.
13 to 16	·456,706
16 .. 20	·503,610
21 .. 24	·520,227
25 .. 28	·545,163
29 .. 32	·589,811
33 .. 36	·776,866
37 .. 39	1·125,000

The results of the above table are given in decimals; but the general results may be described as follows:—When females marry at or before twenty years of age, their average offspring is not quite a child in two years. From twenty to thirty-two, females marrying produce on an average somewhat faster than a child in

two years. If married from thirty-three to thirty-six years of age, females will average more than two births in three years ; and from thirty-seven to thirty-nine, about a birth in each eleven months, being rather more than one each year.

Another strong proof of the care which Nature takes to ensure the perpetuation of the species, whenever it is endangered, is to be found in the Sanitary Report of Edwin Chadwick, Esq., published by order of Parliament in 1843.

"Arranging the several districts of the Metropolis (says Mr. Chadwick, *Report, p.* 246) in the order of the average age of deaths, we find the average age of the living decrease with the average age of the dying ; and the proportion of *births* to the population *increase with the decrease of the average age of death.* The excess in the proportionate number of births, beyond the proportions in such a county as Hereford (1 to 44) where the average age of death is much higher, and proportionate number of deaths to the population, afford important *Indicia.*"

The following is Mr. Chadwick's table of results ; and they fully establish the truth of the principles here laid down.

Districts in which average age of death of the whole population is	Average age of death in the district of all classes.	Average age of all who live in the district.	Proportions of births to population.	Ditto of deaths to ditto.	Excess above Herefordshire in the number of	
					Deaths and funerals.	Births.
	Years	Yrs. Mon.				
Highest, comprising 2 districts. Population, 120,678	35	27 11	1 to 41	1 to 42	966	145
1. Intermediate, 6 districts. Population, 311,622	30	27 5	1 to 39	1 to 46	1,836	689
2. Intermediate, 12 districts. Population, 774,937	27	26 11	1 to 38	1 to 40	7,457	5,718
Lowest, 12 districts. Population, 663,290	23	26 5	1 to 30	1 to 41	5,795	6,822

Here we see that in these English districts poverty, privation, death, and fecundity, march together, though not with equal steps, Turning to Ireland, Mr. Chadwick gives us similar and even more extraordinary results.

	Four counties where the mud-hovels are fewest.					Four counties containing the most mud-hovels.				
Proportions of Births to Population.	1 in 33·4	1 in 34·3	1 in 33·6	1 in 32·5	1 in 33·4	1 in 28·8	1 in 28	1 in 28·7	1 in 31·8	1 in 29·9
Increase per cent. of the Population since 1831.	2·7	10·6	7·9	2·5	5·0	11·7	6·2	10·9	9·9	8·7
Per cent. of Population 15 years and under.	39·7	35·6	37·8	40·9	38·8	42·4	43·1	42·4	39·7	41·9
Above 50 years.	12·0	12·5	10·9	10·9	11·6	9·4	9·4	8·7	10·4	9·5
Proportions above 17 not married.	42	44¼	43½	41	43½	37	36	40½	42	39
Married.	49	47	45½	49½	47¾	55	56	51½	50	53

Nothing can be more striking than the proofs afforded by these results of the Irish population of the true law of increase and decrease. In the richer counties the births, compared with the population, are 1 to 33·4 ; in the poorest counties they increase to 1 to 29·9. Between 1831 and 1842 the increase in the richer counties is *five per cent.* ; in the poorer it is *eight and seven-tenths per cent.* In the prosperous counties the children not more than fifteen years of age are only *thirty-eight and eight-tenths per cent.* of the whole people. In the squalid counties they are nearly *forty-two per cent.* of the whole. In the richer districts, the persons of fifty years of age are to those of the same age and upwards, in the squalid districts, as 11·6 is to 9·5, proving that privation, so far from being a check, is a stimulus to increase ; the births increasing always, in such poor districts faster than the deaths.

It is often asserted that the earlier marriages contracted in Ireland, and more especially in the south of Ireland, which is the poorest part, are the cause of the morbid growth of a redundant population, as exhibited in that unfortunate country. Later and more extended information proves, however, that this fancy is totally destitute of any foundation in truth. In the Eighth

General Report of the Registrar General of Births, Deaths, and Marriages, published in 1849, at page 100 occurs the Tabular Statement, of which the following is an extract, showing the proportionate numbers of unmarried females in various countries :—

PROPORTION OF SPINSTERS TO THE FEMALE POPULATION.

Countries.	Females of 15 years old and upwards.	Spinsters 15 years old and upwards.	Proportion *per cent.* of Spinsters to the whole.
Sweden . . . (1835)	1,032,377	373,830	36·211
Norway . . . (1835)	401,672	165,954	41·316
Hanover . . . (1842)	586,035	231,834	39·560
Saxony . . . (1840)	583,916	215,285	36·869
Holland . . . (1840)	905,149	376,874	41·581
Ireland . . . (1841)	2,526,183	1,032,668	40·879

Thus it appears that the unmarried females of Ireland are much more numerous than in Sweden, Saxony, and Hanover, though rather more numerous than in Holland and Norway. Now Sweden is one of those countries in which the population is most stationary, and least numerous, when compared with the area of the country which they inhabit. Nor are Saxony and Hanover cursed with a surplus of people. Yet it is clear, that in all these countries, in Sweden

especially, the women must marry earlier and more certainly than in Ireland. The real cause of the difference resides in the different mode of living. In Sweden the people live solidly and comfortably, and the people to the square mile are few. In Ireland, where potatoes form the staple food, the people are ever on the verge of starvation; and their numbers are only kept upon a level with their miserable sustenance by means of migrations of hundreds of thousands in a year.

All these results, it may be safely affirmed, tend one way; that is to say, they go directly to confirm the existence of that great natural law which provides that the power of increase shall itself grow with the exigencies of the occasion; and that, as the continuation of the species may be endangered, in that exact proportion the facility and power of continuance shall be enlarged and extended. That this law extends to the human race, as well as being the regulator of the fecundity and produce both of the inferior animals and the vegetable kingdom, seems to be abundantly clear, as far as the proofs derived directly from physiology as well as statistics are concerned. There are, however,

of course, other and more circuitous roads by which we may arrive at other proofs, and to the same conclusions; and to these the natural course and current of the argument next incline us to turn.

CHAPTER VII.

ARGUMENT FROM THE SOLUTION OF SOME HISTORICAL DIFFICULTIES.

In the treatment of a subject like that under review, in addition to the more direct arguments on which the proofs needed are to rest and be embodied, there are also evidences of an indirect kind, which, though perhaps not of themselves conclusive as to the issue, are yet, if joined to other and more simple evidence, strongly corroborative of the truth which, upon the whole, is sought to be established. If, for instance, we can point out one or more historical facts, undoubted as facts, but of which a satisfactory explanation has never been given; and if the theory as to population, and the laws which regulate it, which are now sought to be established, shall afford an easy, natural, and self-evident

explanation of these heretofore historical puzzles or mysteries, then this solution, so arrived at, though not in itself a direct evidence that the theory itself *is* true, is yet presumptive evidence that it probably *may be true;* and if this presumptive proof is corroborated by direct proof, then is the argument upon the whole strengthened by such coincidences; the direct and the indirect testimonies mutually confirming each other. That there are more than one historical fact of this inexplicable nature, but which, admitting the theory now treated of to be true, are rendered easily explicable, it is the business of this chapter to show; and it is hoped that the few preliminary remarks which he has thought it proper to make will avail to show that no improper weight is intended by the author to be laid upon testimony of this kind; and that this part of the argument, though strictly logical as intended to be applied, is given likewise as a matter of curiosity, as it bears, in the reflex, upon the historical points in question.

The first point to which the author would advert occurs in the history of his own country. It is that decay in population which was believed to have been in progress from about the year 1480, up to a period probably ending about

1650; that is to say, from the commencement of Henry the Seventh's reign up to that of Charles the Second. That such a decay was supposed by those living at the time to be going on, is a fact quite unquestionable. It may be proved not only from the writers of the period, but from the Statute Book, where it is not only frequently alluded to, but where it forms the subject of one or more actual and entire statutes. The most remarkable circumstance, however, is that this decay of population, real or supposed, singular as it may seem in itself, went on in company with increasing luxury for the greater portion of the time, on the part of the whole people, and especially on the part of the labouring people. Nor is there the slightest reason to suppose that during any part of the period, save and except during some years of the reign of Queen Elizabeth, anything like extreme want existed, in any modern sense, anywhere in England; and of this not only the writings of the time, but the Statutes also, afford proof in abundance.

Let us now look at the evidence of the first of these facts; that is to say, of the general belief of a decay of the people which prevailed at the period referred to. That such a belief existed, no man who has looked at the

Statutes of these remote periods can doubt. Sir Frederick M. Eden, in his "History of the State of the Poor" (vol. 1, p. 73), says, "from 1488, and for a century and a half after this period, DEPOPULATION continued to be the theme of the Legislature!" That this assertion of Sir Frederick Eden is founded on truth and actual facts, a very cursory inspection of the Acts passed during the period he refers to, and during the periods of about half a century before and after, will afford sufficient testimony to the inquirer. The strongest proof of the evident decay in population, as evinced by "the pulling down of houses and towns," is perhaps the Statute of the fourth year of Henry VII, chapter 19. This Act, it will be seen, after asserting and describing the decay of houses over all the country, especially in the agricultural parts, where changes in trade do not shift or draw together masses of people, absolutely empowers the authorities to repair any ruinous house, which shall have twenty or more acres of land attached, out of the rents, without or against the owner's consent, and levies heavy penalties for neglect of the provisions of such statute.

The following Abstract will, in some measure,

put the reader in possession of the intent as well as the grounds of this extraordinary Act, which prove incontestibly the RAPID DECAY of population at the time of its enactment, though the remedies proposed be inexplicable and absurd. The Act itself extends over many folio pages, and is extremely rare. That its great length has been one cause of its exclusion from the ordinary editions of the Statutes is probable; but it is also quite as likely, that the singular nature of its preamble and enactments must have contributed to its banishment from all modern collections of Acts of Parliament. Under the views we are at this time accustomed to take of the subject of population, the whole seems an inexplicable farrago, and more like an hallucination of Legislative insanity, than an enactment of sane men. The theory, however, now in course of being proved, affords a key to the whole mystery; and the causes which no doubt influenced the Legislature are at once apparent and certain. For the necessity, and likewise the wisdom, of this extraordinary statute, we have the evidence of Lord Bacon, who, in his Life of Henry VII, says, that, but for this Act, many of the Manorial Lords could not have sent their *quota* of men-at-arms!

CHAPTER 19th, HENRY 7th—ANNO QUARTO.

The penalty for decaying of Houses of Husbandry, or not laying of convenient Land for the maintenance of the same.

Item, the King our Soueraigne Lord, having a singular pleasure above all things to avoide such enormities and mischiefes, as be hurtfull and prejudiciall to the common weale of this his land and his subiects of the same, remembreth that, among all other things, great inconveniences daily doe increase, by desolation and pulling downe and wilfull waste of houses and towns within this Realme, and laying to pasture lands, which customably have beene used in tillage, whereby idlenesse, which is the ground off, and beginning of all mischiefes, daily doth encrease.

For where in some towns two hundred persons were occupied and lieued by their lawfull labours, now there are occupied two or three heardmen, and the residue fall into idlenesse, the husbandrie which is one of the greatest commodities of this Realme, is greatly decayed, Churches destroyed, the service of God withdrawen, the bodies there buried not prayed for, the Patrons and Curates wronged, the defence of this land against our enemies outward, feebled and impaired, to the great displeasure of God, to the subuersion of the policie of, and good rule of this land, if remidie be not provided: Wherefore the King our Soueraigne Lord, by the advice of the Lords spirituall and temporall, and the commons of this said Parliament assembled, and by authority of the same, hath ordained, enacted, and stablished, that no person, of what estate, degree, or condition that he be, that hath any house or houses, that at any time within three years past, hath beene or that now is, or that hereafter shall be lette for ferme, with xx. (20) acres of land at least, or more, lying in tillage and husbandrie, that the owner or owners of every such house or houses, or land, doe keepe, sustaine, maintaine houses and buildings vpon the said ground, and land convenient and necessarie for maintaining and vpholding of the said tillage and husbandrie.

And if any such owners or owner of any such houses, or houses and land, take land and occupie any such house or houses, and keep in his or their owne hands, that the saide owner or owners, by the saide

authoritie be bound in likewise to keepe and maintaine houses vpon the saide ground and land, convenient and necessarie for the maintaining and vpholding of the saide tillage and husbandrie. And if any man doe contrary to the premisses of any of them, that then it be lawfull to the King, if any such lands or houses be holden of him immediately, or to the Lords of the Fees, if any such lands be holden of them immediately, to receive yeerely halfe the value of the issues and profits of any such lands, whereof the house or houses be not so maintained and sustained. And the same halfe deale of the issues and profits to have, holde, and keepe to his or their own vse, without anything therefore to be payed or given, till such time as the same house or houses bee sufficiently builded or repaired againe. And that no manner of freehold be in the King, nor any such Lord or Lords, by the taking of any such profits, of or in any such lands in no manner of forme: but onely the King, and the saide Lord or Lords, have power to take, receive, and have the saide issues and profits, as is above saide, and therefore the King, or the saide Lord or Lords to have power to distraine for the saide issues and profits, to be had and perceived by them, in forme above sayde, by authoritie of this present Acte.

This Act is, however, borne most amply out by many others, which demonstrate that the decay which caused all this alarm extended into boroughs and cities, as well as rural villages and townships. Thus the Act of the third year of the next reign (Henry VIII), chapter 8, recites in the preamble, that "MANY, and the MOST PART, of *cities*, *boroughs*, and *towns corporate*, be fallen to ruin and decay." Thus, also, by an Act, anno vii, cap. 1, of the same reign, it is enacted, that, "if any person shall *decay* a town, a hamlet, or house of husbandry, or convert

Tillage into Pasture, the immediate Lord of the Fee shall have the moiety of the offender's land, until the offence be reformed." No light penalty! That this decay of houses followed a progressive diminution of the population, the statutes of the same period prove. Thus, in another Act of the fourth year of Henry the Seventh, being chapter 16, it is asserted, that there is "a great decay of people in the Isle of Wight." This Act was passed in the year 1488, referred to by Sir Frederick Morton Eden, as the time when the alarm of "depopulation" begins to be evident in the Statute Book. It is a most preposterous mode of argument to endeavour to throw doubts upon the facts, because, up to this period, no one has had any true knowledge of the causes. They will neither admit of denial nor of being explained away. It will not do to say that the population were, by the operations of trade, drawn into the towns; because we see that the decay was equally evident in the cities, boroughs, and towns, in spite of any tendency of the people to draw to the towns, a tendency which to some extent certainly did exist; and the causes of which shall be pointed out afterwards, existing, as they do, in that same Statute Book which describes the diminu-

tion of the numbers of the people. As might be expected from persons legislating in profound ignorance of the *real* causes of the phenomena, which they could not help seeing, the causes *assigned*, and the remedies prescribed in these Acts, are highly absurd. "Monopoly" was the bugbear mostly relied on by the alarmists, and the consolidation of farms, and monopolies of live-stock, and different trading monopolies, are inveighed against and limited by various Acts, which fix a maximum of the acres, cattle and sheep, apprentices, &c. &c., to be occupied, or owned, or employed, by the individual. These laws were doubtless sufficiently absurd and impracticable; but they afford proof indubitable of the existence of the state of things which they were intended to remedy.

Such being the facts as to the state of the population during the period of English history referred to, it next remains to be shown that this decay of towns and their inhabitants cannot be explained upon any hypothesis built upon any supposed law of population hitherto attempted to be established. Upon such theories as those which depend upon the assertion that exuberance of food stimulates population, the extraordinary facts alluded to by Sir Frederick Morton Eden

must be held to be absolutely preternatural; for, during the entire period throughout which they manifested themselves, it may be proved beyond the possibility of a doubt, that luxury amongst the middling, and exuberant plenty amongst the very lowest classes, universally prevailed. Of this truth there is not only copious, but various proof. Not only do the writers of the time describe, in a way not to be misunderstood, the amazing ease and plenty which then prevailed throughout England, but the Statutes of the period teem with testimonies of a similar sort. These statutary proofs are of more than one sort. *First*, there are Acts distinctly against luxury of certain sorts; *next*, there are Acts to limit the wages of labour and keep down luxuriousness of living amongst the people at large; and, *lastly*, there are statutes which, in their preamble, describe the plenty then existing. It is necessary for the purposes of this argument to advert to all these in detail, and in their turn, taking them, as nearly as possible, in the order in which they are now mentioned. First, as to the writers.

Of the few writers touching upon the subject in question who flourished at the early periods now referred to, the highest in point of authority stands probably Chief Justice Sir John Fortescue.

His celebrated treatise, "De Laudibus Legum Angliæ," contains evidence the most indubitable of the flourishing state in which England was at the era when it was written. This evidence is the more incontestibly strong, because it is in some degree indirect. Fortescue was not, intentionally, writing a statistical statement of the wealth and mode of living of the English people —quite the contrary. His book is a book of law, and the intention of the learned and venerable writer was to exalt the law and constitutional Government of England above those of other countries. In order to do this effectually, he compares the well-known state of the English people, at the time of his writing, with that of the people of France, where he then was, as guardian to the Prince, the eldest son of Henry VI (afterwards killed at Tewkesbury), during the civil wars of Lancaster and York; and he deduces the wealth and ease of the one, compared with the poverty and wretchedness of the other, from the comparative perfection and imperfection of the laws under which each lived. This part of Chief Justice Fortescue's book is, therefore, an appeal to facts notorious to the world, in corroboration of a legal argument; and, as such, it becomes the best possible evi-

dence of the state and condition of the English people at the time when its distinguished author wrote. The following passages contain invaluable testimony of the wealth, independence, ease, and comfort, which existed in England when they were written. Under the head entitled, "Why inquests are not made by juries of twelve men in other realms as well as in England?" Fortescue thus writes:—

"Moreover, the same countrie is so filled and "replenished with landed men, that therein so "small a thorp cannot be found wherein dwelleth "not a Knight or Esquire, or such a householder "as is there commonly called a Franckelayne, "enriched with great possessions; and also other "freeholders *(libere tenentes)* and many yeomen "*(valecti)*, able for their livelihoods to make a "jury in form aforementioned; for there be in "that land divers yeomen which are able to "dispend by the year above a hundred pounds "*(sexcenta scuta)*, (i. e., *a hundred pounds of the "money of Selden's time*, 1640 *to* 1650, *when "he translated Fortescue; probably six times or "seven times the value of the money of the "present time)*. Wherefore juries, afore-declared, "are then very oft made, specially in great "matters, of Knights and Esquires, and others

" whose possessions, in the whole, amounteth " yearly above the sum of five hundred marks " *(duo millia scutorum)*. Wherefore it cannot " be thought that such men can be suborned, or " that they will be perjured; not only for that " they have before their eyes the fear of God, " but also for that they have a careful regard " to the preservation of their honours, and to " the eschewing of reproach or dammage there- " upon ensueing, and also that their heirs be not " impeached through their infamie. After this " manner, O mighty Prince, are none other " realms of the world disposed and inhabited!"— *Fortescue de Laudibus*, p. 65, chapter 49.

Under the head of "the Commodities that proceed of the joint Government Politique and Royal in the Realm of England," he proceeds thus:—

" Hereby it cometh to passe that the men of " this land are riche, having abundance of gold " and silver, and (all) other things *(cunctis* " *necessariis)* for the maintenance of man's life. " They drink no water, unlesse it be so that " some for devotion and upon a zeale of penance " do abstain from other drink. They eat plen- " tifully of all kinds of flesh and fish. They " weare fine woollen cloth in their apparell.

"They have also abundance of bed-coverings "in their houses and of all other woollen stuffe, "they have great store of all hustlements *(hos-* "*tilimentis)* and implements of household. They "are plentifully furnished with all instruments "of husbandry, and with all other things that "are requisite to the accomplishment of a quiet "and wealthy life according to their estates and "degrees."—*Fortescue de Laudibus*, page 85, chapter 36.

Here we have a description of national wealth and comfort unmatchable, as Sir John Fortescue justly says, in any country or age of which we know anything. He makes it a matter of reproach to the French, that they only eat bacon, and the heads and entrails of oxen and sheep, and that whilst their masters get the pullets, the eggs only are left for them; thus making a hardship of a diet of "eggs and bacon." This famous book was probably written about the year 1460—certainly not later. From this period up to the battle of Bosworth Field, and the accession of Henry the Seventh, is exactly a period of twenty-five years; during which the kingdom was at peace at home and abroad until the Earl of Richmond's enterprise, which after one battle made him king. A quarter

of a century of quiet and security must have tended to increase the wealth and luxury which Fortescue so graphically describes; and yet, at this very time, we find a general alarm of the decay of population and the ruin of towns pervading the Statute Book, and continuing for a century and a half, until the seizure of the possessions of the Church first caused beggary and pauperism in England.

After Chief Justice Fortescue, the most valuable testimony as to the state of society in remoter times, is, perhaps, to be found in Fleetwood's "Chronicon Preciosum," or History of Prices from the earliest known records. Fleetwood's statements were probably in a great measure compiled from Acts of Parliament, County Rolls and Records, and other similar archives. Be that as it may, his statements, both as to wages and the prices of food and clothing, are generally borne out by the statutes passed by Parliament from time to time to regulate both the wages and dress of labouring persons; and the perusal of the whole must impress the most careless reader with a strong conviction of the ease and plenty which must have been felt throughout all society in these ages. The following table, which is compiled mostly

from Fleetwood, but partly from the Statutes, gives a comparative view of the rules of wages and prices of necessaries from A.D. 1400 to A.D. 1650. The whole indicates a highly prosperous state, extending throughout all classes of society.

TABLE OF PRICES AND WAGES.

A.D. 1400.	s.	d.
Wheat, per quarter	8	0
Barley, ditto	5	4
Fat sheep	1	0
Ditto	0	10½
An ox carcass	7	6
A goose	0	4
A lamb	0	8
Best beer, per gallon	0	1½
Claret ditto	0	8
1450.		
Wheat (plentiful), per qr.	5	4
Finest ditto ditto	8	0
Oats ditto	2	1
A lean ox	13	0
A veal or calf	2	0
A goose	0	3
A lamb	1	0
Eggs, per hundred	0	5
Red wine, per gallon	1	0
1454.		
Malt (plenty), per quarter	2	8
Ditto ditto	1	4
An ox	12	0
Ale, per gallon	0	1
1480.		
Wheat, per quarter	4	4
Oats, ditto	2	0

A.D. 1400.	s.	d.
Threshing grain, per qr.	0	2½
A master mason's wages, per day	0	4
Making 100 faggots	0	7
Reaping grain, per acre	0	9
Sawing per 100 ft. of deal	1	1
A labourer's wages, per day	0	3
1450.		
A tiler and man, per day	1	2
A mower, with diet, ditto	0	4
A reaper, with diet, ditto	0	3
A tiler, ditto	0	6
A man and cart, ditto	1	8
A master carpenter, ditto	0	10
A sawyer, ditto	0	6
A labourer, per three days	1	4
A weeder, per day	0	2

1500.	s.	d.
Wheat, per quarter	7	4
Malt, ditto	2	8
A cow	8	0
A lamb	1	0
A pig	0	5
Eggs, per hundred	0	9
Wine, per gallon	1	0
Ditto, ditto	0	8
Carcass of a neat	0	10

1500.	s.	d.
A carpenter, with diet, per day	0	6
A plumber, ditto, ditto	0	6
A tiler or joiner, ditto	0	6
Lesser crafts, without diet, per day	0	6
A mower, ditto, ditto	0	4
A reaper, ditto, ditto	0	3
A carter, ditto, ditto	0	3
A woman labourer, ditto	0	2½

1550.	£	s.	d.
Wheat, per quarter	0	14	8
Ditto (scarcity), ditto	1	0	0
Barley ditto	0	5	0
A steer, fat	1	5	0
Mutton, per carcass	0	5	8
A wedder	0	4	4

1550.	s.	d.
A mower's *statute* wages, with diet, per day	0	4
A mower, without diet, do.	0	10
A binder and shearer, with diet, per day	0	2
A shearer without diet, do.	0	5
A journeyman tailor, with diet, ditto	0	4

1570.			
Wheat (scarcity) per qr.	0	16	0

1570.	s.	d.
Labourers, without diet, per day	0	5

1575.			
Wheat, per quarter	1	0	0

1585.			
Wheat (scarcity) per qr.	1	4	0
A calf or veal	0	7	4
Barley, per quarter	0	13	0

1600.			
Wheat, per quarter	1	1	0
Barley, ditto	0	13	0
A sheep	0	6	4
A goose	0	1	0
Six pigeons	0	0	6

1600.	s.	d.
A labourer, per day	0	10

1610 to 1650.			
A fat ox	9	10	0
Mutton, per stone of 8lb.	0	2	3
A veal	0	17	0
A lamb	0	6	8

1610 to 1650.	s.	d.
A master mason, per day	1	6
A mason, with diet, ditto	1	0
Apprentice masons, ditto	0	10
Apprentices, with diet, do.	0	4

1610 to 1650 *(continued)*.

	£	s.	d.
Tongues, cured, per doz.	0	12	0
A chine of beef . .	0	18	0
Wheat, per quarter .	1	14	0
Ditto, ditto. . .	2	0	0

1610 to 1650 *(continued)*.

	s.	d.
Millwrights, ditto . .	1	6
Ploughwrights, ditto .	1	6
Labourers, ordinary, ditto	0	10
Journeymen artizans, ditto	1	2
Reapers, ditto . . .	1	4
Women shearers, ditto .	1	2
Plumbers, ditto . .	1	4
Glaziers, ditto . . .	1	4
Collar-makers, ditto . .	1	6
Armourers, ditto . .	1	6
Knackers, ditto . .	1	6

In reading the above table, it must always be remembered that the wages quoted by Fleetwood were regulated for the most part by statute, and not by supply and demand. The labourers, being few comparatively, would not bind themselves to work, excepting for ample wages; and this disposition to force exorbitant wages, as it was called, on the part of the labouring people, was attempted to be put down by statutes, which professed to regulate the rates of hire to be paid to different handicrafts. As trade increased, however, it was found that this maximum could not be enforced in the walled towns, and especially at the sea-ports, where there was a growing demand for labourers. Hence there was a constant struggle on the part of the young husbandmen to get to the sea-ports. They crossed the country in bands of a dozen together, carrying quarter-staffs, begging their

way, and threatening those who would not give alms; and hence arose the terms "sturdy beggar" and "staff-striker" in the old statutes. To stop this, Acts were passed to forbid husbandmen entering walled towns: they were all, however, evaded, and the foolish attempt forcibly to regulate wages was gradually abandoned. All this, however, goes to prove the great comfort in which at this period the common people unquestionably lived. We see an artizan earning in three or four days as much as would buy a sheep, a calf, or a quarter of barley or malt. We see wine and beer the common drink of the people; and when we come to examine the statutes relative to food and apparel, we shall find that butchers' meat was the ordinary food of all, and that their dress was of the best and costliest description. To these statutes let us now turn.

The Acts, in which the sort of food upon which the English people lived is most distinctly described, are those which were passed during the reign of Henry the Eighth, against monopolies of grazing stock and the consolidation of grazing farms; the mention being incidental, and by the way, adds to the value of the evidence, the facts being alluded to as

being well known, and indeed perfectly notorious. The cause of the Acts was the great and steady rise in the prices of all sorts of commodities, which took place during this reign, and has gone on down to our own time. The cause of this rise was the discovery of the gold and silver mines of Mexico and Peru, and the constant addition to the quantity of money in circulation that was, as a consequence, going on. At the time, however, this was not understood. The rise of prices, instead of being attributed to the depreciation of the value of money, and its increased quantity, was held to be caused by monopoly, and "forestalling and regrating," as it was termed, and hence Acts were passed to prevent graziers accumulating enormous stocks of cattle and sheep, or holding more than a limited number of acres of grass land. The Acts themselves were futile, but the testimony as to the quality of the food of the people, which they incidentally embody, is invaluable. Thus the statute passed in the twenty-fifth year of Henry the Eighth, chap. xiii, has for its object to limit the number of cattle and sheep held by any individual; but in the preamble, it complains that such has been the rise in the prices of "corn, cattell, wooll, pigs, geese,

hens, chickens, and egges," the ordinary articles "in use by all subjects," that (says the Act) "many have not been able to buy them." In like manner, the Act passed in the twenty-fourth year of the same reign, chap. iii, declares "beef, mutton, pork, and veal" to be the food in ordinary "of the poorer sort." Thus, then, it is past a doubt that, throughout the whole period referred to by Sir Frederick Morton Eden, animal food was the common and daily fare of the people; and when, in addition to the evidence of Chief Justice Fortescue, we look at the laws for regulating the prices of the cloth to be worn by labouring men, we are forced upon the conclusion that, whilst the population was going back, an abundance, bordering on luxury, was reigning and prevalent throughout England. It may be proper to remark also, that both fruit and vegetables, and, to a certain extent, grain, seem to have been, up to a late period, neglected, and hardly to have constituted an article of diet. Butchers' meat, game, with a little bread, and poultry and eggs, were their food. On fast days, fish must have been the resource; as it is well known that most of the fruit and vegetables now in use were of comparatively modern introduction. The English

seem to have left it to the Dutch to cultivate the arts of gardening and planting; and Holland was the great mart both for trees, garden vegetables, and flowers, down to a late period of English history.

The strong testimony of Fortescue as to the costly apparel worn in his time by the English universally, has been already quoted. It is, however, abundantly corroborated by the Statute Book, if corroboration were necessary. From the reign of Edward the Third, to that of Elizabeth, not less than ten distinct statutes for regulating the apparel of servants and labourers were passed! To all these it would be unnecessary to recur, but a recapitulation of the objects of some of them is both instructive and curious. In the third year of Edward III, chapter iv, is an Act against luxury in apparel. It limits the wearing of furs to persons of a certain rank, and in certain offices. In the thirty-seventh year of the same king's reign, was passed another long Act, of many distinct sections or chapters, regulating dress, from that of the gentleman down to that of the day-labourer. In year three of Edward the Fourth, chapter v, a similar statute was enacted, and in the fifth year of the same reign, chapter xiii, another statute to pro-

hibit gilding, and wearing gold and silver lace, except by certain ranks, and this at a period when gold and silver were twenty times their present value! That this wonderful amount of wealth and comfort, distributed throughout an entire people, had been of long growth, seems not to be doubtful. The truth seems to be, that the Norman Invaders and their power—like the Tartars, and other Tribes, that from time to time overran and subdued China—were swallowed up and submerged amidst the greater numbers of the people whom they nominally ruled. Feudalism was, after the lapse of two centuries, only a name, and real independence and wealth seem to have grown, during the lapse of a few reigns, to a height hardly to be surpassed. As early as the period A.D. 1300 complaints of the luxury of the people begin to appear both in the Chronicles and Histories of the time, and in the Statute Book; and as the best proof of the actual wealth and comfort of the people, may be cited the provisions of an Act of Parliament, passed in 1363; that is to say, towards the end of the splendid and prosperous reign of Edward the Third, one of the greatest of the extraordinary family of the Plantagenets. In this Act, tradesmen and artificers,

being master-men, are allowed to wear fine woollen cloth, as high as *one shilling and sixpence the yard.* Ploughmen, hinds, pig-drivers, and others are limited not to wear cloth of a greater price than *one shilling* the yard. Now, as in the reign of Edward the Third, it is certain that money was of nearly twenty times its present value, this is equivalent to prohibiting tradesmen and artizans from wearing cloth, if at or about the price of *thirty shillings the yard,* and labourers from wearing it if it cost more than *eighteen or twenty shillings the yard*—a prohibition at which both tradesmen and labouring men of the present day would stare!

This view of the then highly prosperous condition of the English labourer is fully corroborated by Mr. Thornton, in his treatise on Over-population and its Remedies.* From this candid and elaborate work, the evidence to be obtained is such as cannot be gainsaid, and such as does high honour to the patient research and excellent disposition of its author. The following is Mr. Thornton's description of the state of rural labouring men from about 1340 to the Reformation:

"Married men engaged as labourers, in hus-

* Over-population and its Remedy, by William Thomas Thornton. Longman. 1846.

bandry, seem to have been provided with a cottage and a few acres of land to cultivate for their own profit in the intervals of their masters' work. Some direct payment, either in provisions or money, was also made to them, though it may be difficult to estimate the amount of their receipts from this source. Servants who had no land, if boarded and lodged, as they almost invariably were, by their employers, were in the latter part of the twelfth century rated at about a penny a day. Whether this sum included the expense of their victuals is somewhat doubtful; but in either case, as a penny would at that time have bought a couple of fowls, or the fifth part of a sheep, we may be pretty sure they were well fed. Early in the fourteenth century, a day labourer received a penny a day and his food; and the daily ration served out to him at harvest time seems to have been two herrings and a loaf of bread (of which fifteen were made from a bushel of wheat), besides milk, cheese, and beer. No exception can be taken to the *quantity* of this allowance, and there can be no doubt that the *quality* would be varied, seeing that in these days, a joint of meat might commonly be bought at the price of two loaves.

"By the year 1349 the wages of agricultural

labourers had become 'excessive' in the opinion of the landholders who had to pay them, and whose representatives in Parliament attempted to limit them, by means of the famous 'Statute of Labourers,' passed in that year, which required all servants to accept the same wages as had been customary eight or nine years before. A similar statute (25 Edwd. III, stat. I) passed in the following year, tells us more particularly what these wages had been; viz., a penny a day in hay-making; but fivepence a day for mowers, and twopence or threepence for reapers of corn. Such rates were intended to be applicable only to men not boarded by their masters, for the act forbade giving any victuals 'or other courtesy' in addition. But it must be recollected that labourers who had to find their own food were almost always in possession of a few acres of land; and the act likewise informs us that servants were in the habit of refusing to work for less than *double* or *triple* the prescribed sums. Thirteen years later, in 1363, another effort was made to put an end to high wages by rendering them useless to the receivers, and a law (37 Edwd. III, cap. 14) was passed, enjoining carters, ploughmen, and all other farm-servants, whether of gentlemen, or tradesmen, or artificers, not to eat nor drink 'ex-

cessively,' nor to wear any cloth except 'blanket and russet wool of twelvepence.' Domestic servants, whether of gentlemen, or of tradesmen, or of artificers, were at the same time declared to be entitled to only one meal a day of flesh or fish, and were to content themselves at other meals with 'milk, butter, cheese, and such victuals' (37 Edwd. III, cap. 8). These ordinances, of course, failed entirely of their intended effect; but the Parliament, little discouraged, proceeded, in 1388, to lay down another Tariff of Wages (15 Richd. II, cap. 4), according to which a bailiff was to receive 13s. 3d., a master-hind, carter, or shepherd, 10s., and a common labourer in husbandry 6s. 8d. or 7s. annually. Of course board and lodging were to be allowed in addition, though the law does not mention them. In 1844 these rates were raised to 23s. 4d., 20s., and 15s. respectively, independently of food and of clothes of a specified value. Day-labourers were not to have more than threepence a day without food, except in harvest, when they might be allowed fivepence and sixpence (23 Henry VI, cap. 13). These limitations were, however, as vain as the preceding ones. Wages continued to rise in spite of opposition, and enabled the working classes to indulge in a degree of luxury

which quite scandalised the Parliament, and which it was attempted to check by sumptuary laws. Accordingly, by a statute enacted in 1463 (3 Edwd. IV, cap. 5), servants in husbandry were restricted to clothing materials not worth more than two shillings a yard, and were forbidden to wear hose of a higher price than fourteen pence a pair, or girdles garnished with silver. The price of their wives' cover-chief or head-dress, was not to exceed twelvepence. In 1482 it was found necessary to loosen these restrictions, and labourers in husbandry (22 Edwd. IV, cap. I) were permitted to wear hose as dear as eighteenpence a pair, whilst the sum which their wives might *legally* expend on a covering for the head was raised to twenty pence. This legislation, considering the fall which has since taken place in the value of money, was really much as if a law should now be necessary to prevent ploughmen from strutting about in velvet coats and silk stockings with silver buckles in their shoes, and their wives from trimming their caps with Brussels lace. It exhibits the English peasantry in a condition which was probably never attained by the same class in any other age or country, unless perhaps by the emancipated negroes of the British West Indies, and which they could

scarcely be believed to have really occupied upon slighter evidence than has been brought forward."—*Thornton on Over-population*, pages 171, 2, 3, 4, 5.

This refers to a period anterior to the discovery of the gold and silver mines of Peru and Mexico. After that discovery, however, when the precious metals fell in value, it is pretty certain that not only the English yeoman, but the English labouring hind, became generally owners of silver utensils. This comes out pleasantly enough in the quaint old song, "When this old cap was new," which probably was written about the beginning of Charles I. Touching utensils of plate, the writer of the song thus sings :

"We took not such delight
"In cups of silver fine ;
"None under strain of knight
"In plate drank beer or wine.
"Now each mechanical man
"Hath a cupboard of plate to shew ;
"Which was a rare thing then
"When this old cap was new ! "

All this luxury amongst those by whom the work of the country was really done, arose, as it only could arise, from a gradual diminution of the people, which unquestionably went on between the years 1300 and 1600, if not

longer. To ascribe this rise in wages, as Dr. Mead and other writers try to do, to the plague of 1349, is sheer absurdity. The *maximum* of wages was not reached until the reign of Henry VIII or thereabouts, more than a century afterwards. Nor is it found, by experience, that epidemic pestilences produce much effect upon the population of a country. In India it is believed that not less than fifty millions of persons have been, within a century, swept away by famines and the ravages of Asiatic cholera; and yet the density of population is not appreciably lessened, nor the rates of wages altered. At various periods of the history of Ireland, her population has been rendered a mere fragment by the ravage of war and by consequent famine and pestilential fever; but a few years were sufficient to replenish the gap thus made. The added powers of procreation which they experience who do not actually fall victims to privation, are sufficient for the restoration, after the lapse of a few years, of the numbers abstracted. Nothing, in short, can possibly account for the state of the English population and the progress of luxury in spite of the voluminous statutes passed to check it, excepting that gradual and slow diminution of the numbers of the people

which probably went on, more or less progressively, from the accession of Edward I to that of the Stuarts; or perhaps even up to the final expulsion of that unfortunate race in 1688.

Upon a review of all these facts, the conclusion seems to be undeniable, that a decay or diminution of the population was an observable and admitted fact, from about A.D. 1400, until the expiration of about a century and a half after that time; that both prior to and during the whole period, ease, comfort, and plenty were predominant in England; that the food of the people was chiefly animal food; and that beer, ale, and wine were so plentiful that every man brewed his own beer, and such was the use of French wines, that, according to Froissart, in the reign of Edward III, "a fleet of more than "two hundred English merchantmen was seen "at the single port of Bourdeaux, to import "wine alone:" that fine woollen stuffs, as well as gold and silver lace, and embroidery, were not uncommonly worn; in short, that the Statutes against luxury went hand in hand with those complaining of the decay of towns and decrease of the people! And what is still more remarkable, this decay of towns, villages, and mansions of all sorts, throughout the country, was going

on at the very period when architecture, both ecclesiastical and civil, had attained in England —as witness the noble chapel of Henry the Seventh—the highest pitch of gorgeous magnificence to which it ever rose in these Islands, and from which it was fated speedily, that is to say, in the course of another century, to decline, perhaps, for ever.

That this extraordinary state of things is easily explicable upon the theory of population now attempted to be established, is sufficiently apparent; but the author submits that it must remain a difficulty insuperable under any other hitherto brought before the world.

The gross and plentiful diet of the period above referred to, as compared with the present mode of living in England, by all ranks, is certainly a curious subject for contemplation. Up to the end of Elizabeth's reign, tea and coffee seem to have been totally unknown even to the households of the nobility, and sugar an article of great luxury. In the household book of Philip, the third Lord Wharton, of which the entries for one year are preserved in the Archæologia Æliana, vol. ii, commencing with October in the twenty-seventh year of the reign of Elizabeth, neither tea nor coffee is ever

mentioned. Sugar, in small quantities, at an enormous price, appears classed amongst the spicery, but so dear that a pound is set down as costing eighteen and nineteen pence—about half the price of the carcass of a sheep, or mutton, as given in the same page, which are rated at three shillings and threepence per sheep, whether with or without the skin does not appear. In point of fact, animal food, with wine or beer, seems to have been the food of the whole people, and eaten at all meals and all times of day—saving on fast days, when fish was used. In Lord Wharton's household book oatmeal is only twice mentioned. The warm drinks, called possets and hot tankards, were spiced compositions of wine or ale, eggs, and seasonings; and the gruels and frumeties were similarly enriched. Fish seems to have brought very high prices; and a porpoise, under the title of a "porpus pigge," is rated at *two shillings*, and a "salte salmon" at the same rate, an immense price in these days. Poultry and wild-fowl seem also to have sold high, as compared with ordinary meat, a hen being set down at fourpence, or six shillings for eighteen. In short, it is clear that beef, mutton, veal, and pork were the chief and ordinary food of the

people, with bread and ale, or wine, or sometimes cider. Culinary vegetables and fruits seem to have been totally neglected. So much was this the case, that Katharine of Arragon, when queen, sent to Flanders for a salad; and carrots, turnips, parsnips, and celery were imported from Holland! To show how cheap solid living was, and how easily the rates of wages given enabled the people to procure it, it may be worth while to quote the allowance made to the Lady Anne, daughter of King Edward the Third, married to Lord Howard, son of the Earl of Surrey. To keep herself, one gentlewoman, one woman, one girl, one gentleman, one yeoman, and three grooms, she was allowed one pound eleven shillings per week, this including clothing, wages, &c.! For the support of seven horses, horse furniture, &c., the allowance was twenty-five pounds ten shillings and fourpence per annum! This was a princess's allowance, and occurred probably about fifty years before Chief Justice Fortescue wrote his book describing the state of England. In twenty-five years after that, in the midst of all this plenty, the decay of population and towns is the subject of national alarm!

The solid manner of living at this period is

still more curiously shown in the elaborate household books of Henry Algernon Percy, the fifth Earl of Northumberland, published in vol. iv of the *Antiquarian Repertory*, by Grose and Astle. This Earl was born in 1477-8; and this book contains an account of the mode of living of himself and his household, at his castles of Wresill and Lekinfield in Yorkshire, with entries of the prices paid for everything, and dietary details of great minuteness. From its pages it is easy to deduce that game and fish were the luxuries of the time; that ordinary butchers' meat, such as beef, mutton, pork, lamb, and veal were the ordinary food of the time; that bread was a very small and insignificant portion of the diet of the people, tillage being little practised; and that vegetables and fruits were wholly neglected. Wine and ale and beer seem to have been partaken of by all; and salt fish and salt meats used to a great extent.

The relative prices of these articles show which were common and which were dainties. For instance, whilst we have wheat at 5s. 8d. per quarter, malt 4s. per quarter, sheep 1s. 5d. each, stots 10s. each, a carcass of beef 8s.; ale, 2d. per gallon; wine, £4 per tun; we find the

following prices for game (including a vast variety of birds) and fish: curlews, 1s. each; bitterns, 1s.; pheasants, 1s.; peacocks, 1s.; sholards or shovellers, 6d. each; herons, 1s. each; partridges and quails, 2d. each; mallards, 2d.; geese, 3d.; teals, 1d.; ruffs and reeves, 2d.; plover, 1½d. each; peewits, 1d. each; woodcocks, 1d.; rabbits, 2d. each; knots, 1d. each; snipes, 1d. for three; larks, 2d. per dozen; seagulls, 1d. each; chickens, ¼d. each; pigeons, ¼d. each; capons, 2d. each. Of fish we have, a salted salmon, 6d.; salted eels, 4s. the keg; salted sturgeon, 10s. the firkin; red herrings, 6s. per cade; white herrings, 10s. per barrel. The Earl seems to have bred his own swans, and, of course, his own venison, of which he had store, the total, in all his parks, being of red and fallow deer, 5,571, distributed over twenty-one parks, in the three counties of Northumberland, Cumberland, and Yorkshire.

The sort of diet from day to day is shown by the following bills of fare:—

Breakfast for my lord and lady.—A loaf, two manchets (unsifted wheaten loaves), a quart of beer, a quart of wine, half a chine of boiled mutton or beef.

Breakfast for Lord and Master Thomas Percy.

—A loaf of household bread, two manchets, a pottle of beer, a chicken, or three mutton bones boiled.

Ditto for my lady's gentlewomen.—A loaf, a pottle of beer, three mutton bones, or a piece of beef boiled.

Fast-day breakfast for Lady Margaret and Master Ingeram Percy.—A manchet, a quart of beer, a piece of salt fish, or a dish of buttered eggs.

Tea, coffee, and cocoa were then unknown; sugar was classed amongst the spices; and honey seems to have been enormously dear, being set down in the Earl's house-book at 22s. per barrel, which is nearly three times the price of a carcass of beef, and equal to the value of fifteen sheep. The board wages of ordinary higher servants seem to have been ten pounds per annum, equal to £200 of the money of this day, and the money allowances made for different services are on a scale nearly as extravagant.

The most extraordinary feature is, however, the total neglect in which all vegetables and fruits seem to have been held, both at this period and for two centuries later. In the Earl's household book neither vegetables nor

fruits are ever named; nor does cider, nor does perry, appear amongst the different kinds of beverage. Fruit, indeed, seems to have been neglected in England up to the seventeenth century. The author has in his possession a little book called "A Closet for Ladies," published by Arthur Johnson, St. Paul's, 1668, which professes to give all the receipts then known for conserves, candies, &c. Yet the only fruits mentioned in it are "barberies, pom-citrons, plums, raspises, coriants, quinces, walnuts, and cucumbers." In point of fact, it seems clear and evident that neither grain, nor vegetables, nor fruits, were for many centuries used much in England, which was then emphatically a grazing country. In this way are to be accounted for the enormous prices to which wheat sometimes rose. It was dear for the same reason that keeps it high in Cumberland, where little is grown. Bread, in short, was not then the Englishman's "staff of life." Except during fasts, it formed a mere subordinate fraction of his diet; and it is to this neglect of vegetable aliment, with the use of salted meat and fish, that we must attribute the prevalence of that shocking form of *scorbutus*, known as "*leprosy*."

One other truth we learn from the foregoing

considerations, and that is, how absurd the idea is, that increase of buildings is necessarily a sure sign of prosperity in a district. It is clear it is mostly the contrary. As the poorer part of the population becomes more dense, the old buildings are let into small tenements, and it becomes necessary to build other houses for the more wealthy—a consequence not of increased prosperity, but of an increased poor and needy population.

Leaving now the history of his own country, in times comparatively modern, the author would direct the reader's attention to the annals of a time much more remote, that is to say, to the earlier period of the decline of the Roman Empire. When we look at the great cause of this decline from its beginning to its end, we see an Empire of enormous power and amazing extent gradually brought to the ground by a long succession of attacks by unknown foreign barbarian tribes, whose course may be described in general terms as tending from the north-east to the south-west. As these attacking tribes succeeded each other, they brought with them different names, and different and most vague accounts of their origin and original country. The Cimbri, the Teutones, and Ambrones, were

considered to belong to Germany, and in all likelihood properly so considered. Yet it seems to be probable that the battles of the Consul Marius with these tribes, were only some of the first symptoms of a gradual movement south-westward, passing through Germany and France towards Italy, and precursors of those various incursions which were continued by various tribes, under the names of Goths, Visigoths, Ostrogoths, Vandals, Huns, and the more polished and familiar name of Persians, Ottomans, Moors, and Saracens, and at last brought the empire of the Cæsars to the dust, and broke up the very form and image into which Roman greatness had moulded Europe, and much of Asia and Africa. On a calm review of this mighty movement, it seems difficult, almost impossible, to believe that a continuity of action, spreading over so many centuries, should have its origin in the mere capricious ambition of many various tribes accidentally taking one general direction; or that, in fact, it originated, properly speaking, in ambition or caprice at all. The love of country and locality is universal. Ambition leads nations to extend their empires, and increase their power and name, but not to leave their seats and migrate to other climates. Caprice never did this, neither did

ambition, though both have done strange things. On the contrary, the more we look at the course of the world, as it is known since the latter times of the Roman Commonwealth, down to the extinction of the empire, the more we must feel convinced that some great and pervading cause must have been at the bottom, and constituted the source of this great south-western movement, of which, perhaps, the earliest European pulse may have been the first rush of the Gauls upon the young Republic of Rome, and the last, the sack of Constantinople by Mahomet the Second. The first great stride of this movement was made by the Goths. Of their origin all the accounts are involved in obscurity. Gibbon, upon the authority of Jornandes and others, seems inclined to give some credit to their own almost unintelligible traditions, which assigned for their native country Scandinavia, or the region which is now known as Sweden, but which in earlier times, it is now believed, comprehended a very different expanse of territory. This strange account is, if Sweden be meant, highly improbable on the face of it. How a remote country north of the Baltic, to this hour thinly peopled, should send forth to overrun Poland and Prussia and the countries bordering on the Danube, a multitude

sufficient to alarm the Roman armies stationed in Dacia, and looking on the Danube as a great boundary, those who believe it may describe or account for. Upon a calmer view, it seems more rational to esteem the tribes known as Goths, Visigoths, Ostrogoths, and Vandals, as the advanced guard of that innumerable and unknown horde of nations living in the more northern parts of Asia and the eastern parts of Europe, which, by causes to be explained, were gradually driven westward, and precipitated, in lapse of centuries, one after the other upon the boundaries of the Roman Empire. That this is the almost certain truth, is evident in what is known of the history of their successors in spoliation and conquest, the Huns. These barbarians, from their features as described by all the historians, were clearly Calmucks; the small eyes, the strange features, and the different bodily formation, clearly refer them to the regions now known as the borders of China and Hindostan. Gibbon places their country to the north of the Chinese wall, and it is evidently his opinion, that it was not until a long series of conflicts with the enormous and growing multitudes inhabiting what is now termed China Proper, that they turned their arms westward, and following the course of the Goths

towards Germany, at last pushed, by their *momentum*, their predecessors the Goths over the Danube, upon the Dacian provinces of Rome, in the reign of the weak Emperor Valens, who consented to the passage of his now suppliant barbarian enemies.

Still the cause of the continued human pressure westward, through so many centuries, seems altogether mysterious and inexplicable upon the ordinary motives that actuate masses of people. To read the latter portion of Roman history as it stands, gives the idea of large masses of barbarians from the north-east being smitten, like the animal called the "lemming," with an indescribable love of movement in a certain direction, and precipitating themselves, in spite of slaughter and defeat, by millions after millions upon the western world. For all this there must have existed some great continuous and pervading cause; and this cause is probably to be sought and found in the state and condition of the races of people inhabiting those vast and now thickly peopled regions, known in modern times as China, Ava, Cochin China, Chinese Tartary, Hindostan, Delhi, and the countries west of the Indus, including Affghanistan, Caubul, Lahore, and the Punjaub, until

we come to the frontiers of Persia, and the hilly countries lying towards the Caspian and Euxine.

If there is any remote historical truth established by a mass of evidence that may be called undeniable, it is that the countries above enumerated have been in the state of semi-civilization, in which they now are, for a very long, though probably undefinable period. Without giving much of implicit or unlimited credence to their own chronicles, traditions, and annals, it is yet evident that their state of society bears the general impress of age. Everything we can see and learn tends to establish this. The disposition of the people themselves, their singularly great, though to us imperfect progress in literature and the arts; their histories, their religion, and their monuments, all irresistibly lead to this conclusion; and it appears to be impossible not to believe that the state of society which at present exists amidst the hundreds of millions which swarm over the districts of China and Hindostan, has not so existed, or nearly so, for very many centuries; and that of most of the arts of life they possess a knowledge long anterior to that of even the oldest countries of Europe. Hence we are compelled to think that the modes of life and manners which to this

hour are in full force over these thickly peopled regions, must have been of ancient and slow formation; and though we may not, with the Chinese, date their empire beyond the time fixed by Christians for the creation of the world, we can hardly deny, that, as a people, they are probably the most ancient existing. Here then we see, growing gradually through many and very distant centuries, a system of society which has been proved by the facts to have been so wonderfully favourable to the growth of an enormous and dense population, that, in the regions enumerated, though their area is but a small fragment of the habitable globe, are probably congregated a full fourth part of all mankind. Nay, perhaps, the third part would be the more judicious position, if the estimated numbers of mankind are not held to exceed two thousand millions of persons. For, taking the population of the Chinese Empire at about three hundred and seventy millions, which is now believed to be the fact; Japan, Cochin China, the Burman Empire, Corea, and the other dependencies of China, at seventy millions; the peninsula of Hindostan, from the Indus to the Ganges, at one hundred and sixty millions; and making allowance for the numerous population that lies between the Indus

westward, and the frontiers of Persia, we attain to a multitude of beings hardly to be conceived, though not difficult to be numbered, and probably amounting to nearly one-third part of all the human beings now living upon this globe. Now, in the growth and extension of this enormous population over the regions which they inhabit, but in which they are still as it were cooped up—for a population so dense exists in no other part of the known world—we see the continuous cause of the gradual and progressive migration of all the more scattered tribes which this vast population must have gradually displaced. That the extension of the vast population of China went on amidst perpetual wars with the Calmuck tribes, who were their neighbours, we have light enough from history to show. The same light, however, discovers to us the very natural fact, that the conquerors of China were eventually swallowed up in the enormous multitudes of the conquered; and that hence hostilities were useless as any permanent check to the extension of these myriads throughout such climates as permitted the continuation of their peculiar mode of life. Hence the Huns, after overrunning China again and again, were at last pushed westward upon the

Goths, whom they, in their turn, precipitated upon the Roman Empire in the first instance, and then followed. In fact, climate was the only stay to the extension of a people, who had neither animal food, nor the olive, nor the vine; and it was not until China and India extended their dense hordes to colder and more hilly climates—to Tartary, to Thibet, to Nepaul, and towards the Indian Caucasus—that their numbers began to thin, and the limit that we now see as bounding their empire, was established. What the Huns and Tartars could not do, climate has effected. As soon as the pastoral life was forced upon them, and rice was no longer the staple of subsistence, their numbers ceased to grow, and extended boundaries became no longer a matter of paramount and physical necessity, uncontrollable by the surrounding nations. In the long process of the growth of this immense eastern population we obtain a clew to the cause which must through many centuries have disturbed, and driven from their seats, the tribes that at last, forced westward, trod down and eventually subverted the Roman Empire. How long the enormous populations of China and Hindostan were in attaining their present extraordinary extent, it is impossible to say; their

conflicts with the different Calmuck tribes must no doubt have lengthened the term; but in the growth of these rice-fed millions we have an explanation of historical phenomena, which seem otherwise to be inexplicable, and which have hitherto puzzled all inquirers.

Upon the whole, the author flatters himself that the solution of the two historical difficulties in question, which is afforded by this theory, is a strong collateral proof of the soundness of the theory itself. They are insoluble upon any other hypothesis that has come under the author's notice, and are of too striking and singular a nature not to have perplexed most readers of history.

CHAPTER VIII.

ARGUMENT FROM THE REVENUE.

If it were true that population has a natural tendency to increase equally amongst all classes, unchecked by anything but the inability to procure subsistence, the diseases which arise out of a deficiency of nutriment, and the abandonment of marriage caused by poverty and the fear of it; if this were true, then this is only affirming, in another form of words, that the decrease of a people must take place at the bottom of society, and not in the middle or at the top; for amongst the higher or middle classes there can be neither a want of subsistence, nor such a stringent fear of poverty as to produce general celibacy. From this it should seem of necessity to follow, that, as a people increase in numbers, that increase being from the richer, and not the poorest classes

of society, the power to contribute taxes must of course go on in nearly the same ratio with that of the increase of the numbers of the people. At all events it follows, upon this supposition, that one must increase with the other. This conclusion seems unavoidable when it is considered, that though the heads of a family may not make their children as rich as themselves, yet it cannot be supposed that their offspring do not contribute more or less to the taxes of the state. It is impossible to conceive this to be the case in a country like England, where almost all articles of ordinary consumption even are taxed, and where no man can escape indirect taxation, live as he may, not even the miserable Irish serf who exists upon potatoes; in short, if the population of England has increased in all classes, it seems impossible to doubt that taxation must have grown with the power of paying it, inasmuch as the consumption of tea, coffee, spirits, soap, tobacco, wine, and beer must, as a matter of course, have in a greater or less degree followed such an increase. The increased and added numbers amongst the higher and middling ranks must have derived from their parents, in the shape of saved capital, credit, and education, the ability to consume a share of

taxed articles; and therefore this sort of increase, if it really took place in a country, must be followed by an increase of ability to pay taxes, arising out of the added numbers to the wealthier classes. If, on the contrary, a population be increased by addition from the poorer classes alone, then it is evident that this addition may not be followed by any increased power of paying taxes, because the wages of labour may fall in such a proportion that the power to consume taxed articles may not be increased.

If, therefore, in any country the productiveness of the revenue is found to be at a standstill, whilst the numbers of the people are increased, it seems inevitably to follow, as a conclusion, that the increase must be altogether amongst the poor; for, had it been equally diffused, the power of consuming taxed articles must in some degree, whether more or less, have been also increased, at all events for a time. The reader need hardly be told that this sort of proof, as to how and whence population grows and increases, cannot be very visible save and except in countries very highly taxed, because it is the extreme of poverty only that can debar any portion of a people from using some of the comforts and luxuries of life. That the state of the

revenue of Great Britain, however, at this moment affords this particular description of proof, the author is well convinced; and it now remains to be shown that such is the case.

If there is to be any faith placed in the returns of the numbers of the population which have from time to time been published and put forth under the sanction of Government, the population in the year 1811 were twelve millions five hundred and ninety-six thousand eight hundred and three persons. In 1839 they are estimated at eighteen millions five hundred and twenty-four thousand and thirty-six persons, with a probable increase since that time. Such are asserted to be the numbers of the population of Great Britain at these two periods: what was the amount of taxation at each period? In 1811 the gross amount of taxation was sixty-six millions three hundred and sixty-five thousand five hundred and thirty-five pounds. In 1830 the gross amount is only fifty-four millions one hundred thousand four hundred and nine pounds, and of this last sum a small portion is Irish taxes, the exchequers being now blended; and yet it is notorious that even this lesser amount in money cannot be continued to be paid by the increased millions

of population, as, in spite of an addition of five per cent. added to the taxes in 1840, the revenue has absolutely decreased and not increased. The author is not unaware that, as it stands, and upon the face of it, this is an unfair statement and a false comparison, because unquestionably the value of money in the year first named, 1811, was less than in 1839 and 1840. But even deducting one-third, or thirty-three per cent., for depreciation, the value of the taxes in 1811 still stands at forty-four millions. If, then, twelve millions of people could pay in 1811 forty-four millions of pounds in taxes, eighteen millions ought, if the increase was diffused equally over all classes, to be able to pay, with the same ease, sixty-six millions; but it is proved that they cannot, with Ireland aiding, pay fifty-four millions; therefore the increase has been chiefly amongst the poor, or this could not have happened: *q. e. d.*

In stating this result, it ought not to be forgotten that the poor's-rate has been forcibly depressed below the level at which it stood in 1811, by a cruel and stringent law; and yet the saving arising from this operation of the New Poor Law has not caused an ability to pay taxes at all commensurate with that of 1811,

which adds greatly to the force of the reasoning already adduced, and to the high probability of the truth of the conclusion to which it leads. The great increase of poor-rates which had in 1833-4, notwithstanding the difference in value of money caused by the Currency Bill of 1819, touched nearly the highest amount at the end of the war in 1815, and which caused "the Poor Law Amendment Bill," is also a strong corroborative testimony of the same truth—that increase of population is ever amongst the poor; and that, *as* is the poverty of living, *so* is the tendency to multiply.

Since the above was written, we have seen the corn-laws give way before the fears inspired by a rapidly growing but only half-employed populace. We have also seen the fetters of trade relaxed in all directions. Yet, despite the ease afforded by these extraordinary concessions, we see an income-tax in time of peace necessary to enable the interest of the debt to be paid, and the current expenses of the country met and liquidated; the estimated revenue being £52,990,000 for the present year of 1853.

CHAPTER IX.

ARGUMENT FROM THE RECENT DECREASE OF THE QUANTITY OF ANIMAL FOOD CONSUMED IN ENGLAND.

ALTHOUGH in preceding portions of this essay the mode of living in the earlier times of England has been described, and proved to be a diet of beef, mutton, veal, and pork or bacon, it is not inexpedient to show that a great alteration for the worse in that diet is at this moment going on in this country, where an increase of the population is yearly taking place to a greater or less extent. We have seen that, when butchers' meat was the grand staple of subsistence the numbers of the people tended to diminish. We shall now see, that whilst the number of inhabitants are swelling yearly, their use of butchers' meat is receding; that wine is drunk only by the rich; that even malt-liquor is comparatively scarce; and that the consumption of potatoes

has grown rapidly in modern times. The consumption of wine in England has been proved to have been as large a century since as it is now; and malt shows similar results.

To show the actual diminution of the use of animal food throughout England is no easy matter. There are no returns in existence, probably, which would give the slaughter of cattle annually throughout the country at large; and those for London exhibit a false result, from the increased numbers of people daily, by the operation of artificial causes, located permanently or temporarily in the metropolis. Steam is increasing the number of visitants by thousands, and their increase, of course, causes an increase of permanent inhabitants; for inns, taverns, lodging-houses, &c., must be found for these erratic tribes, according to their demand for increased accommodation. Still there is a means of approximating to the facts, generally speaking, as to the national increase or decrease, of animal diet. The calculation was made by the author of this treatise in the course of two letters to Lord Althorp, then Chancellor of the Exchequer, which were reprinted in "Cobbett's Political Register," 13th of April and 25th of May, 1833. The object of the author was to

show the increase of fraud in the Excise duties on soap; but in the course of his proof, it became necessary to show that the amount of tallow produced in England had greatly decreased, and a decrease of tallow is a decrease of butchers' meat. The mode taken was as follows, and the result, the author has reason to believe, is near the truth :—

Two years were taken between which to institute a comparison; and on account of some of the documents for these years being more perfect than those of other years, the periods of 1815 and 1829 were selected. The process of calculation is as follows :—It was computed by those most conversant in the tallow trade, that, in the year 1815, the produce of tallow from cattle slaughtered in England was from 50,000 tons to 53,000 tons in all. This estimate was, however, of tallow in the rough state, before being melted and refined. To get the quantity of merchantable tallow, a fifth of the whole weight must be deducted as refuse; and therefore the quantity of available tallow produced in Great Britain in 1815 may be safely set down at forty-one thousand tons at least, and certainly at no less a quantity. Now, then, it was known that in the year 1815 the tallow produced in

England made all the candles manufactured in England, and left a *surplus*. This was a notorious fact to all whose interest it was to know it. Almost every chandler in England, after making his year's candles, had a small *remanet* of tallow; and this he was in the habit of selling to the soap-makers, who used it for making hard soap, along with imported foreign tallow from Russia or Buenos Ayres. The tallow consumed in the manufacture of candles of all sorts in 1815 was thirty-eight thousand tons only, leaving, as the surplus or *remanet*, the quantity required to make up the forty-one thousand tons produced. The population, at that period, may be safely estimated at thirteen millions in round numbers at the most. This was the state of things in 1815 as to this question. Let us now jump to 1829, a period of fourteen years, and, subjecting it to the same examination, note down the results. The year 1829 was a year of considerable plenty, as far as the seasons, both for tillage and grazing, were concerned; and it was also a year of comparatively low prices, for, in the April of this year, all bank-notes under five pounds were withdrawn from circulation, and the depression of prices which naturally followed this measure, happened accordingly. The con-

sequence was, that the consumption of butchers' meat was, in all probability, above that which would have taken place under ordinary circumstances; and yet it was far from commensurate with the increase of the people, whose numbers had by this time reached the amount of sixteen millions of persons. Such was the population: the amount of home-produced tallow was great, though not great in proportion, and reached, by the best calculations, nearly as far as forty-seven thousand tons of good, merchantable, available tallow, being an increase of six thousand tons upon the produce of 1815. The demand for candles had, however, after the end of the war, increased in a greater ratio. The manufactories had, owing to the throwing open of the continental field, been enormously multiplied. The night was made to supply its relays of workmen as well as day; and hence, though gas was now beginning to be generally used, and also oil lamps of superior manufacture, the necessity for candles had rather outstripped the growth of the people, and the amount of tallow made into candles in 1829 is very large, amounting, as it did in that year, to fifty-two thousand tons of tallow. Thus, then, with an increased demand for labour, but also with an

increased population, the result is, that in 1829 the tallow produced in this country was so far from making all the candles wanted, and leaving a surplus, that it was actually deficient by the amount of five thousand tons of tallow. This statement admits of being verified to some extent, and this verification was exhibited as follows :—

It has been stated that the surplus home-produced tallow, after the making of all the candles in the kingdom, was sold by the tallow-chandlers and candle-makers to the manufacturers of hard soap. This was the case up to the end of the war in 1815 ; but after that time the case was gradually reversed, and the makers of tallow candles, instead of having an annual surplus to sell, became, after a few years, buyers of foreign tallow, to supply the deficiency, which now began to be felt, of the produce at home. This foreign tallow was, throughout the country, naturally supplied to the candle-makers, by the soap-makers, who were always, of necessity, holders of foreign tallow, and who being dispersed throughout all the large towns, were at hand to supply it.

Here then was a *datum* or *calculus* supplied.

The makers of soap cultivated this tallow trade in proportion to their means and capital; and if, therefore, it was ascertained what proportion of the soap of the kingdom was made in any one large town, the amount of tallow supplied by the soap-makers to the tallow-chandlers might safely be calculated to be in the same *ratio*, as to the trade in tallow of this sort, throughout the country. This calculation was accordingly gone into, and the town of Newcastle-upon-Tyne taken as the criterion. In the year 1829, the hard soap made in Newcastle-upon-Tyne was *one-fourteenth* of the whole known to be made in the kingdom of Great Britain. The number of casks of tallow supplied by the soap-makers to the tallow-chandlers was then accurately ascertained; and they amounted to within a trifle of *nine hundred* casks of Russian yellow candle tallow. Nine hundred casks multiplied by *fourteen* gives twelve thousand six hundred casks; these twelve thousand six hundred casks would as nearly as possible amount to *five thousand* tons of tallow; and this, curiously enough, agrees exactly with the difference between the weight of candles made, and the home produce of tallow in 1829. It is probable that the

greater strictness as to the collection of the Revenue in 1829 would increase the amount of candles made, more than the tenth as compared with the returns of 1815; still, however, it cannot be doubted that the calculations on the whole approximate tolerably closely to the actual truth.

Thus, then, it appears that, if to the excess of three thousand tons, in 1815, be added the deficiency of five thousand tons of tallow, produced at home in 1829, the whole falling off is eight thousand tons of tallow. The proportion that tallow bears to lean in cattle is averaged as *one* to *ten*. Here then we have proof of a diminution in one year, 1829, of *eighty thousand tons* in the consumption of beef alone; which, at the rate of half a pound per day for the individual, would be a fair supply for a million of persons, or two hundred thousand families. If to this we add the diminution to a corresponding extent in the consumption of mutton, the tallow of which does not, in any great degree, enter into the composition of tallow candles, and some diminution even in the use of bacon, we cannot but doubt that the addition of three millions of persons to the population, during the fourteen years intervening between 1815

and 1829, was made in company with a vast decrease in the consumption of animal food; and that, therefore, the probability is, that the increase of people was nearly altogether amongst the poor. That this was certainly the case, there is, however, other corroborating evidence.

First, we have the rapid increase of the poor's-rates, which, ever since the population was known to be decisively upon the increase, have gone on, in spite of all the efforts of Ministers and Parliaments to narrow the amount of relief, with redoubled strides, and since the accession of George the Third, in 1760, when their amount was under two millions annually, have more than tripled themselves! Again, we have the decreased consumption of malt, which, before the passing of the first Act to impose a tax on it, in the year 1662, was used by the people, it is believed, to three times its present extent. Since then the population has gone on growing, and the consumption of the nutritious beverage of malt liquor has gone on diminishing. Even up to the middle of the last century, and later than that, not only most of the persons inhabiting towns, but all the agricultural labourers, brewed their own beer. The knowledge of brewing over all England was as universal as is

the knowledge of making bread over all the North of England at this hour. Every Northumberland, Cumberland, Durham, Yorkshire, Lancashire, and Westmoreland servant could not only bake but brew; and the same knowledge of beer-making extended over all England. Such now is the disuse of malt liquor, that this general knowledge is now all but at an end, and is confined to a trade. If increased population, with decreased means, goes on, the art of bread-making will soon be similarly lost even in the North, where the cheapness of fuel has hitherto preserved it. In addition to this proof of decreased solidity of subsistence having marched step by step with the march of population, is the increased cultivation and use of the potato as an article of staple diet. It is confidently stated in agricultural reports, and by practical farmers, that the culture of the potato in England itself (leaving out Ireland and Scotland) has quadrupled during the last hundred years. This is asserted as a known and admitted fact in the *Mark Lane Express* in 1837, and the *known* consumption of potatoes in London alone, for the preceding year, is affirmed to be as high as one hundred and eighty-five thousand six hundred and fifty tons' weight! A plain proof

that great numbers even of the metropolitan populace must subsist almost entirely upon this miserable root; for, at the rate of three pounds of potatoes per day, this would subsist three hundred and fifty thousand grown persons, which is equal to a full fourth of the population of the metropolis! The *known* consumption must, however, be under the *real* consumption; and if this be true of luxurious London, what must be the case in other poorer parts of the country? Such are the facts; and yet, with these facts, we find, in companionship, the fact that English population is steadily upon the increase. That the use of this root is not diminishing much in England notwithstanding recent failures of crops, seems proved by the great importations, which average 46,000 *tons per annum.*

There is one other observation to be made which, though it does not apply to England, is yet not out of place here. It is this; that almost the only spot on the inhabited globe where systematic cannibalism has been incontestibly proved to prevail, is all but destitute of animal or even nutritious vegetable food, and when first discovered was even more so than it is at this time. This place is New Zealand, which, until a colony was planted there by the English from Aus-

within the last twenty years, was in this condition. From what is now known, it seems clear that when first discovered by Tasman in 1642, these Islands were nearly destitute of any quadruped whatever, and that even of nutritive vegetables their produce was nearly *nil*. Of indigenous quadrupeds there were a few of a species of wild dog or fox, some rats, a species of bat, and perhaps the alligator; but this is still uncertain, and will probably, from the nature of the streams, not turn out to be the case. The birds principally were wild pigeons, wild ducks, and some parroquets and sea-gulls. In fact, the natives lived chiefly upon the root of a wild fern, and upon fish, which are plentiful on the coasts, until their numbers probably at last induced the hideous practice of subsisting upon each other. That constant wars were followed by feasts on human flesh, until the custom of eating each other at last became perfectly common and habitual, is now ascertained. This is ascribed by some to superstition; and superstition may have been a cause or pretext, but it is probable that sheer hunger had much to do with the establishment of a taste so utterly revolting and horrible. It may be said that the numbers of this people are not great in comparison with the

area of the islands. This is true, but then it must be remembered, they have been kept down by perpetual slaughter, both on a large and small scale; that they have no great extent of land fit for cultivation; and that they were, until Cook visited them, destitute of anything worth cultivation. Of the roots and seeds which he left, only the potato and turnip are remaining; and they are grown in the rudest way only in scattered plots round the coast. In fact, the interior of the whole land is lofty Alpine mountains, washed by rapid streams, with snowy summits at the greatest elevations, and the lower valleys and ravines covered with gigantic and inexhaustible timber! but these regions are totally solitary and uninhabited forests, growing little or nothing for the food of man; in short, umbrageous deserts. The way in which the natives lived is evident in their few arts; they were expert in making lines of wild flax, in catching fish, and in cooking them; and an occasional whale or the seal were great delicacies. They could also snare birds, but their epicurism was in human flesh; the roasted or baked thigh of a girl of fourteen or fifteen being described by them as the greatest known delicacy, and in terms according exactly with the language of Swift's ironical "proposal for eating

the children of the poor in Ireland!" To the author, it appears hardly possible to conceive that so shocking a state of life and society could have arisen from anything short of a surplus population totally destitute of food. In the winter, which is stormy in that latitude, vegetables must have been scarce, and fish for a length of time often unattainable by a people who had not the art of curing them for keeping. That upon such diet, their numbers would soon outstrip their powers of obtaining food, seems to the author sufficiently proved; and to a people so placed, with neither religion nor morality to plead against it, the palpable and necessary, and only resource, was cannibalism. The "Arreoys" of Otaheite were the step *next* to this.

Upon the whole, the author trusts he has made it abundantly apparent, that where a population rapidly increases, it will be found to do so always in company with poverty of living; that the increase will be amongst the poor, and will march at the exact pace of the advance of the hardship and meagreness of living amongst those who so increase.

CHAPTER X.

ARGUMENT FROM THE CURRENT OPINIONS OF MANKIND IN PAST TIME.

If mankind had been in a constant, universal, and invariable state of increase from the beginning, save and except only when and where such increase was violently stopped by starvation or the intense dread of it—by slaughter, whether of war or domestic—by pestilence, or by elemental convulsions—this law could hardly have failed to become apparent to mankind in general. It is hardly possible to conceive of such a state of natural arrangement, and at the same time to conceive that this constant and universal increase, or tendency to it, should have remained undiscovered from one age to another; and mankind should have lived under such a striking natural dispensation as this, century after cen-

tury for thousands of years, all the time blind to and unconscious of it. If, however, we look at the opinions of former times as to this momentous matter, as far as such can be collected from writings that survive, we shall find the current of opinion setting generally in the contrary direction, and a constant recurrence of traditions amongst the old authors that the world, or particular districts of it, had been much more populous formerly than it was at the period when they wrote, or near to that period. The best "bird's-eye view" of the notions and traditions of the Greek and Roman writers as to the population of various countries at different periods is, perhaps, given by David Hume in his elaborate and learned essay "on the Populousness of Ancient Nations." In this essay he has collected, with much pains, the opinions of a great number of classic and other authors as to the state of population at various times and places; and these opinions he examines after his usual acute method. Hume was at all times sufficiently disposed to be sceptical, but here he is perfectly excusable. Being himself destitute of any notion of the law which regulates population, and having apparently no theory, good, bad or indifferent, as to the question, it

is amusing to see how completely even his sagacious, cool, penetrating, and patiently inquiring mind is bewildered by the maze of evidence which, when brought together, the accounts of these writers may be properly styled. Hume's inclination is, as usual, to combat the generally received opinion. Many of the exaggerated statements as to numbers, of which the loose method of estimating multitudes, common to all times, but most common to ancient times, has been sufficiently prolific, he doubts, and successfully disproves. His grand puzzle, however, seems to lie in the various accounts of periods of *depopulation* which he adduces from different writers. These occur at the periods, and under the circumstances, when, if the theory now attempted to be established be founded in truth, they might be expected to occur, and of course to be placed by historians. The periods assigned, however, appear to Hume precisely those when no such phenomena ought to be expected; and after quoting and disbelieving various accounts of the decay of nations, he, at last, fairly confesses his complete bewilderment, and leaves this part of the question where he found it. In opposing what he deems exaggerated stories of population, and to

explain the causes of periods of depopulation, which he is compelled to admit, he relies chiefly on the greater cruelties practised in former ages, the bloodiness of the battles, the massacre of prisoners, the harshness to and *occasional secret massacres* of slaves, and the devastations of conquerors; and the proneness of early annalists to the exaggeration of all accounts hinging upon considerations of number. Such are the general features of this celebrated and elaborate essay: let us now come to particulars.

In order to prove the prevalence of the opinion that in former times the numbers of mankind were greater than at subsequent periods, it is only requisite to quote the names of the principal authors whom Hume feels himself called upon to combat, in various ways, on the score of their statements as to the population of various nations and places, at various periods of time. Amongst the offenders in this way he enumerates Thucydides, Diodorus Siculus, Strabo, Herodotus, Plato, Theocritus, Polybius, Appian, Herodian, Athenæus, Demetrius Phalereus, Justin, Dionysius Halicarnassæus, Pliny the Elder, Plutarch, and Tacitus. Amongst the moderns he only mentions Vossius and Montesquieu; which last seems, from passages both in his "Persian Letters" and "Spirit of Laws,"

to have held stout opinions upon this subject. In his treatment of the exaggerated statements of these writers as to numbers, Hume is often ingenious, and sometimes in all human probability right. With their testimonies as to the decay and depopulation of different states at different periods, he finds it more difficult to deal. In fact, he is completely puzzled by them; and as the writers who give them do not attempt to explain them, they stand before the sceptical eye of Hume as a set of unaccountable anomalies and contradictions, incapable of explanation or of reconciliation with any known facts. Let us look at one or two of these passages.

"The laws, or as some writers call them, the "seditions of the Gracchi, were occasioned by "their observing the *increase* of slaves all over "Italy, and the *diminution* of free citizens. "Appian ascribes the increase to the propagation "of the slaves; Plutarch to the purchasing of "barbarians, who were chained and imprisoned, "βαρβαρικα δεσμωτερια. It is to be presumed "that both causes concurred."—*Essays*, vol. i, page 387.

Here is an instance of *partial* depopulation in one class, with perhaps some increase in the other class, with which Hume is sadly puzzled. He

does not attempt to explain it, and the explanations which he quotes are no explanations at all. The propagation of slaves to which Appian (Hist. Rom., lib. i) refers, of course went on; but what prevented the provincial free Roman citizens from propagating at the same rate? Plutarch, in his "Lives of the Gracchi," attributes it to the purchase of more slaves. As their wealth increased, this would probably be in accordance with the fact; but to account for so marked a disproportion, and for that disproportion being used as an argument by Caius and Tiberius Gracchus for their "Agrarian laws," for *a new distribution of lands* amongst those who had served was their object, we are compelled to admit a great and real diminution in the numbers of the Roman citizens, who held the provincial estates under the Republic. The facts, as stated by Appian and Plutarch, agree exactly with the statement made by Tacitus of the complete decay of the old Roman Patrician nobles in the time of Augustus; and upon the theory here insisted on, the whole is natural and probable in the highest degree. These men were the aristocracy of the provinces, and their decay only accords with the history of all aristocracies. Again—

"Polybius (lib. ii) says, that the Romans,

"between the first and second Punic Wars, "being threatened with an invasion from the "Gauls, mustered all their own forces and those "of their allies, and found them to amount to "seven hundred thousand men able to bear "arms; a great number, surely, and which, "when joined to the slaves, is probably *not less*, "if not *rather more*, than that extent of coun- "try affords at present. The enumeration, too, "seems to have been made with some exactness; "and Polybius gives us the detail of the parti- "culars. But might not the number be magni- "fied, in order to encourage the people? Dio- "dorus Siculus makes the same enumeration "amount to near a million. These variations "are *suspicious*. He plainly, too, supposes that "Italy in his time was *not* so populous; another "*suspicious* circumstance. For who can believe "that the inhabitants of that country *diminished* "from the time of the first Punic War to that "of the Triumvirate?"—*Essays*, vol. i, p. 413.

Of the foregoing passage, it may be with perfect fairness observed, that Mr. Hume's efforts to throw suspicions on the statements of Polybius and Diodorus are not very happy. Polybius, who was especially a writer of military knowledge, goes more into the *minutiæ* of the muster

than does Diodorus Siculus. After all, the difference is only between "more than seven hundred thousand" and a "million." As for the charge of exaggeration, it may be brought at any time against anything, or anybody. Hume's especial bewilderment is apparent, however, in the concluding sentence. "Who can believe," he asks with astonishment, "that the population of that country diminished between the first Punic War and the Triumvirate?" Now, if this theory of population which we are considering, be true, this is very easy to be believed. The Roman territory, at the time referred to by Diodorus and Polybius, was still narrow. The country that supplied these fighting men consisted, as Hume admits, of what now is the Pope's dominions, Tuscany, and a portion of the kingdom of Naples. At the time referred to the inhabitants were the whole Roman people and their tributaries, and the population must accordingly have been of that miscellaneous sort which forms the average of a young nation, which has neither acquired great wealth nor great power. Of such a people the poor would be the majority; and if in the Republic there was then little wealth, we may be sure there was no luxury. Here are all the requisites

for an increasing and somewhat dense population. If with this we compare the period of the Triumvirate, we shall find the very reverse state of things. Rome was then mistress almost of the known world. The wealth drawn into and about the city was enormous; and the whole regions alluded to belonged, past a doubt, to wealthy Roman citizens of all classes, from the patrician to the provincial free citizen. Here was a state of society precisely calculated to limit a population; want there could be none, generally speaking; and the chances are, there could hardly be a superfluous man in the whole district, save the household slaves of the landlords. Thus, then, narrowly looking at the statements of Polybius and Diodorus, and keeping in view the law of population now sought to be established, there seems every reason to believe them to be faithfully correct; and also that the belief of Diodorus Siculus that these districts were more populous then than in his time, is perfectly just, and in strict accordance with the probabilities deducible from known facts. The next passage is still more curious, from the bewilderment of all the writers as to the real causes of the decay or increase of a people.

"Were I (says Mr. Hume) to assign a period "when I imagine this part of the world might "possibly contain more inhabitants than at "present, I should pitch upon the age of Trajan "and the Antonines; the great extent of the "Roman empire being then civilised and culti- "vated, settled almost in a profound peace, both "foreign and domestic, and living under the "same regular police and government. But we "are told (by Montesquieu, l'Esprit des Loix, "54, xxiii, cap. 19) that all *extensive* govern- "ments, especially absolute monarchies, are "*pernicious to population*, and contain a *secret* "*vice* and *poison* which destroy the effect of all "these *promising appearances!* To confirm this "there is a passage cited from Plutarch *(De* "*Orac. defectus)*, which, being somewhat singu- "lar, we shall here examine it.

"The author, endeavouring to account for the "silence of many of the oracles, says that it may "be ascribed to the *present desolation of the* "*world*, proceeding from former wars and fac- "tions; which common calamity, he adds, has "fallen heavier upon Greece than on any other "country; insomuch that the whole could "scarcely at present furnish three thousand war- "riors; a number which, in the time of the

" Median war, was supplied by the single city of " Megara. The gods, therefore, who affect works " of dignity and importance, have suppressed " many of their oracles, and deign not to use so " many interpreters of their will to so diminutive " a people.

" I must confess that this passage contains so " many difficulties that I know not what to " make of it! You may observe that Plutarch " assigns for a cause of the decay of mankind, " not the *extensive dominion* of the Romans, but " the *former* wars and factions of the several " States, *all of which were quieted by the Roman* " *arms.* *Plutarch's* reasoning is, therefore, di- " rectly contrary to the inference which is drawn " (by Montesquieu) from the fact he advances."

Mr. Hume "does not know what to make of this passage," and it must doubtless have appeared sufficiently perplexing and contradictory. To the author, it seems to be (upon his own principles) susceptible of a full and complete explanation. Montesquieu, it appears, had arrived to full and sufficient knowledge of the FACT that extensive and settled governments, and especially monarchies, which tend to encourage luxury, and did not, in ancient times, *fiscally* oppress the mass of the people, so as to drive

them to a poor and famishing manner of subsistence, are *not* favourable to population. This *fact* the author of "The Spirit of Laws" had satisfied himself was true; and therefore he quotes Plutarch *for the fact*, that the population of Greece had diminished from the period of its conquest by the Romans down to his own time, notwithstanding Plutarch himself attributes the diminution to an opposite reason. That Plutarch should reason differently is not surprising, though his reason is a very unreasonable one, even upon his own notions. It is difficult to bring men in general to be convinced that a nation cannot be permanently lessened by devastations through war; so rapidly are the gaps in the population filled up under such circumstances.

In more modern times we have seen the history of the attempts to extirpate the Irish, and have it recorded how rapidly their numbers were recruited after a few years of respite and mercy. Plutarch, however, was not aware that a people cannot be extinguished, unless by being, as the Carthaginians were, brought into utter slavery, and lost amid their conquerors; and having also no conception of the truth which President Montesquieu so confidently and properly enunciates, he had nothing for it but to

attribute the diminution of the Greeks to their *former wars;* which were constant enough, and cruel enough, and devastating enough; slipping over the difficulty that, during the long period which elapsed between the Roman Conquest and his own time, that is to say, between the taking of Corinth by the Consul Mummius, and Plutarch's time, a period of two hundred and fifty-six years, during which there were no devastations, a *cure*, upon *his own theory*, must have been surely wrought. This appears to the author to be a natural solution of the feelings and views under which both Montesquieu and Plutarch wrote. That the fact was as Montesquieu states, the author does not doubt. Though the Greeks, after the Roman Conquest, lost their independence, they were not oppressed. The ingenuity and industry of the people were allowed, in peace, to reap their own reward—comfort and affluence, and occasional luxury. Taxation was moderate, and being for the most part direct, trenched little upon the comforts of the mass of the inhabitants, and from the poverty and devastations caused by their own unruly passions, they were thenceforward exempt. Montesquieu is right, therefore, in attributing the thinner population to the Roman dominion;

and of the fact itself we cannot doubt, since Plutarch, who was himself a Greek, expressly states it, though he gives the wrong reason for it. Their former numbers may have been exaggerated; but of the general fact of the decay in their numbers, there seems to be no room for doubt.

Strongly confirmatory of this general truth, is the fact that, when Julius Cæsar, during his first consulship, passed an agrarian law similar to the Flavian law, in order to satisfy at once the veterans of Pompey's legions and ingratiate himself with the Roman *plebs*, he settled a colony of twenty thousand Roman citizens in and about Capua. In making this colony of citizens, he chose only such heads of families as had *three children or upwards;* his design being thus to give a premium to the procreation of Roman citizens by birth. To this step he was prompted by the visible decrease of persons inheriting the Roman citizens' franchise, which was becoming a source of alarm; a decrease in their power or numbers being sure to be followed by aggressions on the part of the provincial Italians and others, who envied that distinction and the advantages it conferred. This example was followed by Cæsar's successors in every

future case of division of lands, whether forfeiture or conquest were the occasion; and this fact tells strongly as to the impression which the natural decay amongst the families of the wealthier Romans made upon the minds of their rulers.

The same phenomenon of a greatly decreased population, which Plutarch remarks in Greece and Diodorus in Italy, this latter writer also describes as having taken place in Egypt. He asserts (*vide Diodorus*, i, 31, xvii, 52) that at the period when the Alexandrian populace rose against the dictator Julius Cæsar, the population of that country, including the citizens of the great mart Alexandria, was not half of what it had been two centuries before. Nor can this diminution be possibly attributed either to war or to poverty; because, although Egypt was not formally incorporated as a province of the empire until after the fall of the Triumvir Antony and his paramour Queen Cleopatra, it had been, from the time of Ptolemy Philadelphus, virtually Roman, and had participated in all the benefits of Roman protection, without being exposed to Roman Proconsular rapacity. In fact, after Sicily, Egypt was the great granary of Rome, and was on that account cherished by her rulers,

with a constant solicitude; those rulers being ever in great dread of the effects of a famine amongst the citizens. Under the especial protection of Rome, Egyptian commerce, as well as Egyptian agriculture, grew and flourished; and such was the enormous wealth of the Treasury and Royal Palace of Alexandria, that, after Egypt became, under Octavius Cæsar Augustus, a province of the empire; and the world's master, in order to buy popularity, rifled the treasures of Queen Cleopatra, and coined the gold and silver, so obtained, at Rome; money was actually depreciated *fifty per cent*, and the rate of interest, at times, reduced to nothing, or nearly so! To this fact there is abundant testimony. Dion Cassius distinctly alludes to it (*vide Dion.* ii, 21). Orosius (vi, 19) states the depreciation clearly: "Roma in tantum opibus aucta est, ut, propter abundantiam pecuniarum *duplicia* quam usque ad id fuerant possessionum aliarumque rerum venalium *pretia statuerentur*." "Rome so increased in wealth, that the abundance of money caused prices *double* of what had existed before to be given, not only for real property but for all articles of sale." Suetonius (*Octavius*, 41) gives a similar account, though less exactly, and then adds: "Et postea, quoties ex damnatorum

bonis pecunia superflueret, *usum ejus gratuitum* iis qui cavere in duplum possent, ad certum tempus, indulsit." "After this, when, from confiscations, money flowed into the treasury, he indulged those who could give security to double the amount with the use of this money, free of interest for a certain term." These statements give striking evidence of the wealth and prosperity of Egypt during the nominal reigns of the latter Ptolemies; and in company with this prosperity, we find a decrease of the Egyptian people, according to Diodorus, of fully one-half; although every circumstance must have tended to draw together a great mercantile as well as agricultural population.

Thus, so far are the old historians from countenancing the idea of a constant increase in the numbers of mankind, that they afford us direct and unhesitating evidence to the contrary. The causes of the occasional decrease which they describe were unknown to them; but when we see this decrease always attributed to peaceful and prosperous periods, no reader of this essay need doubt what these causes really were.

Such were the opinions of the ancients as to the numbers of mankind at different periods. They certainly seem by no means to lean towards

the recognition of any overwhelming tendency to constant growth; but expressly recognise periods for decay and diminution, as well as periods for enlargement and increase. Nor are their statements to be set aside on account of occasional exaggeration, to which all computations as to numbers of people are peculiarly liable. If we come nearer modern times, we shall find the same opinions prevailing to more or less extent, as to certain periods, both of this country and others; and probably not without foundation in truth.

Of all European countries, this opinion has been most prevalent with regard to Spain. If we are to believe the Roman writers, this fine and romantic country, when at last subdued by the wonderful military genius of Rome and her sons, was highly populous. Of what race the people were, is not at all clear. They are called by the Latin writers sometimes "Iberi," and sometimes "Hispani;" but the general opinion is, they were principally of the tribe called "Celts," who, leaving Asia at some remote period, as the spreading south-eastern population of that quarter of the globe began gradually to drive the more scattered, less dense, and more Nomadic tribes to the westward, spread them-

selves over Spain, then inhabited by the Iberi, Gaul, part of Germany, Belgium, and thence over to Great Britain and Ireland. From this singular race are supposed to be derived the Druidical monuments which exist in these islands; but the striking part of their character seems to have been their restless, untameable nature. Wherever they settled, they seem to have been subdivided into small nations or clans, amongst which continual feuds and wars seem to have raged. This character seems to have attached to the Spanish part of them, who are always characterized by the Roman writers as a wrathful, quarrelsome, and ferocious race. "Impacatos Iberos" is Virgil's epithet for them, and the historians fully corroborate the poet, painting them, one and all, as a bellicose race of savages, split into tribes, and making perpetual inroads upon each other's territory, much after the manner of the Highlanders of Scotland and the kings of Ireland, a very few centuries ago. Hume, in his essay, as usual, takes this state to be one unfavourable to population; but we have the direct testimony of history (Cicero de Haruspice, cap. ix), that at this time the Iberian population was great. The Carthaginian inroads had not tended to alter the habits of the people; and

it was not until after they were completely subdued by the Romans, that their numbers began to decline. Nor is this wonderful, if we admit the truth of the theory here adduced. If, in modern times, we see a year of moderate dearness or scarcity produce an immediate start in population (as has been shown in a preceding section), what must be the case when frequent devastations were producing artificial famines, and inducing perpetually recurring hardships amongst all classes of these people? When Hispania, however, became a Roman province, it gradually became a rich country. That it was much cherished by the Romans, is a matter of history. Spain, until the discovery of Mexico and Peru, and the establishment of an intercourse with India, was almost the sole source whence the precious metals were obtained. Hence wealth flowed in, both upon the Roman conquerors and the inhabitants. Quiet and civilization went hand in hand with wealth; and after the spread of Christianity, Spain, owing to the romantic beauty of the country, became a favourite retreat for Christians who wished to escape in solitude from the sneers of the world, or perhaps its persecution. It was here that Ausonius addressed his deprecatory epistles to St. Paulinus (*Ausonius*,

Epistolæ, xxiv, xxv), who had retired to this now quiet, civilized, moderately peopled, but still romantic country; and the sites of other hermitages are still pointed out in various parts of Spain and Portugal. About the year A.D. 409, in the general disruption of the Western Empire, this fine province was overrun by the Alani, and other Gothic hordes, who, following the early movement of the Celts, at last overwhelmed and trod to pieces the Roman Empire. To this succeeded the invasion and conquest of the Moors, until they again were finally driven out of Spain about A.D. 1312.

What might have been the population of Spain at the era of the expulsion of the Moors it is impossible to say, but it seems tolerably certain that the Spanish people have been since that time declining in numbers rather than otherwise. From that time down to the present, this singular and fine people have retained not only their national habits, but their national privileges. Though united nominally in one monarchy, the Basque provinces have retained their language, their rights, and real independence. They have never paid taxes beyond the established fueros. Even Charles the Fifth, in the plenitude of his power was compelled to

respect them, and their example has so far operated, that it has preserved the rest of Spain at all times from great fiscal oppression, which operates beyond all other causes put together to alter the condition of a country long subjected to it. Hence wealth has been upon the whole equably diffused through Spain, especially in the Basque provinces, where nobility has no privileges. Thus we see in Spain, as described by Laborde and others, a fine and mountainous country inhabited by a people for the most part leading the pastoral life, and grazing herds of cattle, sheep, goats, and swine, rather than employed in tillage, but caring little for commerce or its products, save at the sea-ports and a few large towns. In such a country, divided for the most part amongst small proprietors, who hand down their little estates from generation to generation, the mode of living, though rough and simple, is plentiful and full. The vine sheds its blessings in the shape of the most nutritious wines over the whole region. The sugar of the rasin aids the fatness of the olive in producing a generous aliment for the cultivators of the soil and shepherds of the flocks and herds, which depasture in rich and endless droves in the rich valleys of this favoured land. Poultry is in abundance,

and eggs, cheese, and butter add their nutriment to that derived from the flesh of cattle, sheep, and goats, with which the kingdom everywhere abounds. Travellers who talk of the poverty of Spain mistake roughness for want; and wonder at finding bad inns amongst a pastoral people who care nothing for travellers. This equably diffused plenty the Spanish Monarchs have never been enabled materially to lessen by exactions; and the political power of Spain, whilst she had political power, may be ascribed to the vast wealth which for a series of years the government derived from Mexico and Peru. That the influx of this wealth helped to check population still further, is evident in the fact that Spain is now the least populous country in Europe; and since the loss of the Indies, the most politically feeble, for with that loss the revenue of the Monarch perished; and Spain, strong in herself, is powerless abroad. Whilst Spain retains the olive and the vine, her rich pastures and endless sheep-walks, her magnificent woods, and arable plains, she can never be populous, whilst peaceful and untaxed; nor to reverse such a state of things will a mere ordinary warfare be sufficient, unless the devastations of the Celts, and the perpetual strategy of the Iberi, arise again to astonish modern times.

If we turn our attention to our own country, we shall find the same notions of its former populousness existing, and similar reasons for believing them to be not unfounded in fact. It has been supposed by many, that, at the period of the Norman Conquest, and during the times anterior to that event, England had more inhabitants than she possessed some centuries afterwards; nor are reasons wanting to prove the probability of this opinion. If we look into the details of the great battles fought. or armies raised, from the period of the Conquest to the time of Henry the Seventh, so far from finding any superiority in the numbers of the more modern armies, we discover the contrary, though the kingdom was, during the latter period, unquestionably richer, and the means for paying and maintaining armies easier to be had. If, for instance, we are to credit history as to events so comparatively recent as the Norman Invasion, it seems undeniable that the armies commanded by King Harold the Second at the battle of Hastings, and the battle near York, which immediately preceded it, must have been more numerous than any army raised in England from that time down to the conflict at Bosworth Field, which gave the crown to Henry the

Seventh. In the battle at Stamford Bridge, which immediately preceded that of Hastings, Harold is said to have brought not less than sixty thousand men to oppose Harfager, the Norwegian Prince and Tosti, Earl of Northumberland, whose army, not much inferior to Harold's, was partly composed of Englishmen. In this bloody encounter, although victorious, the English king's loss must have been severe; and yet eighteen days after this battle the fatal conflict at Hastings is fought. In this great conflict, it seems certain that the armies engaged were superior in number to those who fought at Stamford Bridge eighteen days before. William, the Norman, had with him eight hundred and ninety-six ships of all sorts; which, at the rate of eighty soldiers to each transport, gives an armament of seventy thousand men. The English army, it is certain, though inferior in discipline, was superior in numbers, and if the impatient Harold would have waited for a few days, it would have been much more so. Though no quarter was given by the Normans, the number of English said to be slain is beyond all credibility, they being stated at sixty-seven thousand nine hundred and seventy-four men. It is quite certain, however, from the immediate submis-

sion that followed, that the slaughter must have been prodigious; and it seems difficult to conceive that, on the English side, less than one hundred thousand men could have been engaged. If to these we add the numbers that must have been killed, wounded, and disabled, in many ways, at Stamford Bridge, eighteen days before, and again add to these the approaching troops, for which the impatient Harold would not wait, it makes the amount of Harold's disposable force very large; and when, in addition to this, it is reflected that Tosti's troops were also Englishmen, we must conclude that not less than one hundred and fifty to two hundred thousand Englishmen must have been collected for these two encounters; an enormous force, and not nearly equalled in any action fought for many centuries afterwards in or by England.

If there be a period in which beyond all others we should naturally look for a mighty preparation, that period is the date of Edward the Third's French expedition. The nation was then in a state of prosperity and wealth, which has probably never really been exceeded at any future time. As a proof of this, Rapin relates that a private citizen of London, a *winemerchant*, at the close of the war, entertained Edward, the

King of Cyprus, and the two kings of France and Scotland, with all their attendants and the whole court, in a most sumptuous manner. To form an idea of what such royal entertainment must necessarily have been, we must turn to Hollinshed, who, in his Chronicle, states that, about this period, fifty-six different kinds of foreign wine were drunk in England; and when, in addition, it is recollected that the main part of Edward's revenue arose from "Tunnage" —a small duty on foreign wines—it is easy to see how universal "high living" had then become in England! The pay of Edward's army seems to have been upon a scale according with this state of things: he had introduced artillery, and the pay of some of his gunners is put down at the enormous sum of a shilling per day of the valuable money of that time. The entire number of the army that sailed with Edward was, however, only thirty-one thousand six hundred and ninety-four men, exclusive of the nobility, splendidly equipped, no doubt; but yet a small armament when compared with those who fought at Hastings and Stamford Bridge.

Later than this was the equally celebrated expedition of Henry the Fifth. As to the numbers who attended him there seems to be less cer-

tainty. Rapin says fifty thousand men, but this seems to include the sailors of the fleet, for Monstrelet makes the fighting men amount to only twenty-six thousand men. It seems clear, however, that the number was not great, if we are to believe the accounts as to the mere handful that fought soon after at Agincourt. The greatest battle after Hastings is however, probably, Towton, in the next reign. In this desperate conflict both sides were Englishmen; the fate of the kingdom depended upon its issue; the passions of both parties were roused to the highest pitch; and it is probable that, as there was ample time, every nerve was strained to bring the greatest possible number into the field. Yet, giving all latitude to the accounts, it does not seem that more than one hundred and eight thousand men of all sorts met at Towton, when both the North and South of England were drained of all their men-at-arms for this grand conflict. Here there is no symptom of increased population, but the contrary. All the other Yorkist and Lancastrian battles were fought with very inferior numbers, and the slaughter seems to have fallen most upon the nobility and gentry, who were probably much more hearty in the cause than were the commonalty, who

would understand little, and care less, about the dispute. It is to be remembered, too, that these wars were spread over a period of from twelve to fifteen years.

Though the battle fought at Towton, in Yorkshire, was, in point of number, the greatest that was fought by the partizans of the Roses, yet both this battle, and that near Hexham, as well as at Hedgeley Moor, between Queen Margaret's forces and those of the Yorkists under Neville, Lord Montacute, and some others, of which part of the forces were derived from the North, show that, though there is no reason for supposing the population to be more than equal, or indeed quite equal, to what it was at the period of the Norman Conquest, still that it had not declined in the marked and visible way in which it diminished after the reign of Edward the Fourth, which ended in 1483. We see here considerable forces raised in this part of the country, as far down as 1470. That the population had rapidly decreased after that time, is proved, not only by the Statute Book, but by such enumerations as took place after that period, within one hundred and fifty years. In 1615, it appears in Surtees' "History of Durham" (vol. i, Appendix I, p. cxxxvii), that a

muster of all males in the county of Durham, between the ages of sixteen and sixty, capable of bearing arms, was made on St. Gilesgate Moor, near the city of Durham, by command of the King, James I. The return is imperfect, the numbers for each parish being given for two of the four Wards only; that is to say, for those of Easington and Chester. The totals, however, are given for the Wards of Darlington and Stockton; so that we have the entire amount; and the whole bears sufficient evidence upon it, that the muster and enumeration were made with an approximation to accuracy. This return would, of course, exclude the Clergy; but it does not appear that there were any other persons exempt. The document is as follows:—

APPENDIX XXXIV.—*(Randall's MSS.)*

THE NUMBER OF MEN BETWEEN THE AGES OF SIXTEEN AND SIXTY, THAT APPEARED AT THE GENERAL MUSTER, ON ST. GILESGATE MOOR, A.D. 1615.

EASINGTON WARD.

St. Gyles' Parish	84
St. Nicholas	216
Hesleden	66
Easington	140
Trimdon and Kelloe	147
Aulton	51
Pittington	83
Houghton	289
Bishops-Weremouth	196
Lumley (part of Chester in Easington Ward)	80
Castle Eden	13
Seham	36
N. Bailey	54
S. Bailey	10
	1465

CHESTER WARD.

East Bolden	36
Monk-Weremouth	87
Whitburne	63
Washington	40
Jarrow	294
Gateshead	365
Lamesley	184
Ebchester	15
Carried forward	1084

Brought forward	1084
Ryton	277
Medomsley	53
Whickham	360
Lanchester	138
Eshe	20
St. Margaret's	187
St. Oswald's	119
Chester and Tanfield	239
Chapelry (qu. Satley)	72
Hunstonworth	14
Muggleswick	42
Witton Gilbert	44
Kibblesworth	8
	2657

(TOTAL.)

Darlington Ward	2946	
Stockton Ward	1223	
* Easington Ward	1494	
Chester Ward	2657	
	8320	persons.

Without supposing this document to be accurate (for of course there must have been numerous absentees, for various obvious reasons), it cannot still be doubted that it is an approximation to the truth, a second muster, two years after, being nearly the same. Thus then we see, that

* This disagrees with the particular return.

in the space of about a century and a half, the whole of the men capable of bearing arms which the county of Durham could furnish, would hardly make a fifth part of those who perished on the side of the Lancastrians at the grand conflict of Towton, where the forces of Lancaster were drawn from the North. The slaughter of King Henry the Sixth's army at Towton, Dr. Lingard, an historian who is not disposed to exaggerate in these points, admits could not be much below thirty-eight thousand men, or nearly five times the Durham muster of 1615.

A more decisive testimony of the diminution of the population through the period that intervenes between the Norman Conquest and the reign of Elizabeth is, perhaps, the comparison of the ecclesiastical distribution of the country, which has existed since the Reformation, with that which had been made and existed for many centuries before that event. It is well known, that, let the distribution be made when it might, the parishes of England, up to the time of the Reformation, were much above thirteen thousand in number. In round numbers they may be stated at fourteen thousand. In each of these was resident a Rector or Vicar, who was not

only maintained from the tithes, but was expected to show hospitality, and also to take care that the poor of his parish, if any, were relieved out of the tithes, of which they were held to be entitled to a share. After paying the poor and the Priest, the remainder went to build or repair the Church, and in part to the Bishop. That the tithes of all parishes were held to be amply sufficient for these purposes, is evident in the Act passed in the fifteenth year of Richard the Second, to compel the Monasteries who held livings to provide better for their Vicars (for thus came Vicars into the Church), and also to provide for the poor. The Statute enacts that "a convenient sum of money be paid and distributed yearly of the fruits and profits of the same Churches, by those that shall have the said Churches in proper use, and by their successors, to the *poor parishioners* of the said Churches, in aid of their living and sustenance for ever; and also that the Vicar *be well and sufficiently endowed.*" This Act, which is still law as far as vicarial tithes are concerned, was, as to the poor, of universal application to all parishes, and proves, as much as document can, that the thirteen thousand and odd parishes existing up to the time of Henry the Eighth, were

cultivated, inhabited parishes; maintaining a Church, however small, and a priest, however poor, with some residue for destitute persons.

When, after the Reformation, the Church was remodelled, was it found necessary, in consequence of an exuberance of people, to divide populous parishes into two benefices, as might naturally be expected, if the people had exhibited any increase? Quite the contrary! After the Reformation, the number of benefices of all sorts, by moulding two livings into one in many cases, were reduced below the number of eleven thousand, and are at this moment only *ten thousand seven hundred and forty-two*, according to the return of the Government Commissioners, published "by command of his Majesty," in 1835. It is impossible to reconcile to common sense the new ecclesiastical distribution or division at the Reformation unless upon the hypothesis or supposition that the population had visibly decreased since the old division had obtained full credence. Had the extensive parishes become more populous, the course indicated was to divide further, and split the inconveniently populous into two. But the contrary course was taken. The conclusion therefore is, that a decreased population was apparent;

for this naturally leads to, and excuses a union of parishes.

Upon a review of all these circumstances, it is not easy to escape the conviction, that, from the time of the Conquest up to Elizabeth's reign inclusive, the population had not only been stationary, but had at last declined visibly. From the time of the Act of Parliament quoted by Sir Frederick Morton Eden, up to the accession of James the First, in 1603, it seems evident that the decay had been so visible as to cause great alarm, though it had been less palpable before that time. And, under the theory here argued for, this was the natural course of events. The country soon recovered the effects of the Conquest; the feudal institutions soon fell into desuetude; and after the extinction of the immediate Norman line, there can be no doubt of the rapid progress of the nation in wealth, power, and freedom. The walled towns and seaports, one after another, obtained charters; Ireland was added to the British dominions; Wales was subdued; France was all but added to the Crown of England; Parliaments were free; the old and mild common law of England was in full force; trade grew apace, and the nation, being free from a

foreign invader, and almost from a civil broil up to the reign of the Sixth Henry, had, beyond doubt, arrived at a pitch of generally diffused wealth, and even luxury, such as the world had not till then seen, nor perhaps dreamed of. Nor is it probable, on calm consideration of the matter, that the general prosperity of the people suffered materially by the wars of the Roses. The parties unquestionably fought with great fury, and much blood was shed; but the country was not devastated, as by a foreign invader. Neither party wished to injure nor exasperate the people, though they wished to put down each other; hence, until the armies actually met, there was no hostility going on. They did not burn towns, nor lay waste the country: they only fought pitched battles in convenient positions. It is only by depressing for a length of time the social condition of large masses of people, that population is to be or can be stimulated; but this can only be done by a long series of hostile devastations, or by a continuous and grinding fiscal tyranny, reducing the mass of a people to live upon the lowest amount of sustenance upon which human life can be sustained. Hence, up to the period when the Reformation deprived the few poor

in England of their share of the Church lands and tithes, want was unheard of, and the name of pauper unknown. That this happy state of society was not attended with an increasing population, but the contrary, the author trusts he has now adduced abundant evidence to prove.

That one of the causes of this happy and prosperous state, resided in the position of the Church at this period is, however, a truth that ought neither to be overlooked nor concealed, The Church was an easy landlord. It was her interest to attach the population to her; and hence her lands were always let upon long leases of lives, and at rates most moderate. That this acted generally upon the rates of rent cannot be doubted, although the immense rates of profit which all trades then enjoyed also had the share in keeping down the rentals of landed estates within very moderate bounds, compared with those of modern times. Thus the rental of land being moderate, and the population being moderate, and taxes and rates being almost unknown, the pay of the labourer was ample, at the same time that the profits of traders were extraordinary. This is evident in the fact that agricultural labourers, whose statute

wages were from *ninety to upwards of one hundred pounds a year*, in the money of this day, made to the sea-ports and walled towns, where higher rates were given! We can only judge of the profits of trade in these times by getting some idea of the *numbers* that were of one trade, and obtained a livelihood from it. To do this, there are no *data* remaining of the age of Elizabeth, as far as the author knows; but, going back even a century, the results are strikingly indicative. By the returns of licenses, it appears that in 1736, there were in London, of licensed houses for the sale of liquors, fifteen thousand eight hundred and thirty-nine. In 1835, only five thousand, with nearly three times the population. In 1785, the licensed soap-makers were nine hundred and seventy-one; in 1834 only three hundred and two. The soap made in 1785 was only *thirty-nine millions of pounds' weight avoirdupois;* in the year 1835 *one hundred and fifty-four millions of pounds' weight* were charged with, and the duty paid upon them. From this some judgment may be formed what the profits of trade must have been in the fourteenth and fifteenth centuries. The better, however, to assist this judgment, the author appends the following statement of the increase of the

quantity made followed by a constant decrease in the numbers of makers, which shows the rate at which profits have lowered and narrowed ever since 1785; and the reader may rest assured that the ratio *upwards* is only the *inverse* of the ratio *downwards.*

STATEMENT.

(FROM PAGE 10 OF REPORT XVII OF EXCISE COMMISSIONERS.)

Date.	Hard Soap made.	Soft Soap made.	Number of Manufacturers.
1785	35,012,412lbs.	3,358,228	971
1790	42,074,309	3,671,425	772
1795	48,262,786	3,495,559	677
1800	54,233,311	3,528,432	652
1805	65,723,869	4,575,130	553
1810	72,636,296	6,146,529	510
1815	77,678,063	6,224,002	447
1820	82,379,891	7,099,297	398
1825	102,623,165	8,910,504	305
1830	117,324,321	10,209,519	309
1834	144,344,043	10,401,281	302

(The above was compiled from yearly returns.)

Another source of the ease and comfort of the people must not be passed over unnoticed; and this source was comprised in the common lands. Up to the period of the Revolution of 1688, every township had its common, and every great town or borough its common, proportioned to the size and importance of the place. The use of these lands, it is clear, would fall mainly to

the share of the poorer inhabitants of the townships and of the borough towns; so that here was another safeguard against destitution, of immense importance, if contemplated in its magnitude as a whole. It is impossible now to come at any correct account of the extent of the common lands as they existed two centuries ago; but some writers have not hesitated to estimate them as high in amount as six millions of acres. This may be, and probably is, an over-estimate, but that it is greatly over, the author does not believe. If we take the parishes as they were anterior to the Reformation, and allow three townships to each country parish, this will give a probable result of forty thousand townships, after throwing off two thousand for the town parishes. If each township had eighty acres of common on the average, this would be three millions and two hundred thousand acres, exclusive of the lands attached in the shape of common and moor to the great towns, the extents of which were unquestionably very great. The work of inclosing these commons, under Acts of Parliament, called Inclosure Bills, began in the reign of Queen Anne, when three were passed. The numbers increased slowly at first. George the First assented to sixteen; and George the

Second to two hundred and twenty-three. After the accession of George the Third, however, inclosure of commons went on apace; and in his reign alone, three thousand eight hundred and ninety-seven Inclosure Bills (or thereabouts) were passed—(See Lords' Report, 1814, and other documents)—so that the accounts up to the accession of George the Fourth, stand thus:—

	Bills for Inclosure.
Queen Anne	3
George I	16
George II	223
George III	3,897
	4,139

Considering the numbers that must have passed since, and considering the expenses of local Acts, it seems probable that on the average these bills must have alienated some hundreds of acres for each bill; and this view is confirmed by more recent accounts. It is now known that the Inclosure Acts passed, up to a late date, on the whole, amount to the enormous number of four thousand two hundred and sixty-four; nor can the amount of acres inclosed be much under *eight millions*, probably worth £6,000,000 *per*

annum. The former great extent of the common lands, and the aid that the poorer classes must have derived from them, become then very apparent, and go to prove how impossible it was, under all these concurrent circumstances, that there should be anything like pauperism at that time in England; yet it is only since these circumstances have been altered that fears of over-population have succeeded to the terrors of a decay of that, the rapid increase of which is now so greatly dreaded.

One more proof of the wealth of the times referred to, the author may adduce. This was the annual fairs, and the great importance attached to them. Every borough had by its charter one or two annual fairs, generally two; one for cattle—one for merchandise. At these fairs it is known that the people universally not only bought their *annual stock* of many articles for ready money, but also cattle and swine to kill and salt for winter provision; a fact which alone shows the ease in which they lived. These fairs exist in part now; but the persons frequenting them are not the same, nor is the amount of lucrative traffic probably to be compared to that of former times, when all ranks bought, and bought largely. Of such importance used these

fairs to be, that when the City of Bath had Birton fair granted, the Burgesses of Bristol, out of jealousy, established a fair on the same day, and prohibited Bristol wares from going to Birton fair by a bylaw. On the Bathonians, however, petitioning the king (Edward III), the evil was redressed by the king and council. (Warner's History of Bath, p. 174.) Thus everything seems to concur to prove, at the period referred to, luxury and over-plenty wrought decay in numbers, and that it became at once necessary to pass statutes against luxury, and statutes to repair houses that were falling down for want of inhabitants.

CHAPTER XI.

CONSIDERATIONS OF THE INTERNAL EVIDENCE FOR THIS THEORY.

THE author of these sheets presumes that he may venture to lay down the following rule; that is to say, that whenever any theory or hypothesis as to natural dispensation or arrangement is, or can be shown to be, at apparent variance with the benevolence of the Deity, that variance is strong internal evidence against its truth, upon whatever grounds of proof of other descriptions such hypothesis may rest; whilst, on the other hand, it may be with equal fairness assumed, that when any hypothesis or scheme of natural arrangement or dispensation is in accordance with and illustrative of that benevolence which we attribute to the Diety as his personal attribute, then such accordance is, *quantum valeat*, internal evidence of its truth—

that is to say, evidence as far as it goes—though requiring the corroboration of other and more direct evidence to amount to proof. Thus, for instance, when the existence of evil is supposed as part of an hypothesis, without sufficient cause in the shape of an ultimate beneficial result, or without an evident necessity to preserve other beneficial results already shown to be existing, then this is indirectly to attribute the gratuitous causation of evil to the Divine Being; a position at variance with the benevolence at first predicated, which admits of the existence of evil only because an imperfect state of being cannot admit of a perfect state of happiness, but not of evil, gratuitous, and arising neither from a necessity in nature, nor as a means to a compensating beneficial end.

Having ventured these brief observations, the author will now proceed to show that the hypothesis here advocated, is not liable to the objection above stated, but is, on the contrary, entitled to the benefit of such presumption in its favour, as an accordance with the benevolence and wisdom of the Divine Author of the Universe is calculated to afford it, the natural arrangement it lays down being, if true and existing in fact, apparently and plainly tending and intended

to promote the happiness of mankind, with the causation of as little of accompanying evil as can well be conceived. In order to do this clearly and effectually, it is only necessary, first, to recapitulate the leading points or positions of the theory now attempted to be established; and then, having done this, to show the results, moral and physical, which flow from the admission of its truth. In the *first place*, then, if this theory of increase and decrease be true, it is true that when any species, whether of the vegetable or animal kingdom, is endangered, by a failure or diminution of its natural sustenance, and reduced to the deplethoric state, then, in such case, is an immediate stimulus given to increase, which continues as long as the state continues. *Secondly*, it is also true, that if, on the contrary, such species shall receive immoderate natural aliment, and be brought into the extreme plethoric state, then in that case increase is immediately checked, and decrease takes place, which continues as long as the state is continued. *Thirdly*, it is also true, that if moderate, sufficient aliment, or a moderated plethoric state, is allotted to and brought upon any species, then mere reproduction will be the result, without increase or decrease of existing numbers.

Fourthly, that if equal portions of the same species be put into these different states, in equal degrees, it follows, as a true conclusion, that the decrease of one portion will be compensated by the increase of the other, and numbers remain as they were. These four propositions, the author trusts he has in the foregoing sections of this work given evidence to establish ; and supposing the theory which they embody to be true, let us now inquire into the different results, natural and moral, which flow from them.

The first consideration likely to attract the attention of the reader is, as it seems to the writer, that under this law of increase and decrease, a provision is made for the protection of any species that is endangered, which is efficient only *when* it is wanted, and in the precise *ratio* in which it is wanted. This, upon the face of it, seems surely to be a more wise and providential arrangement, than would be a law under which the tendency to increase is supposed to be always equal. It is so, because such a law as that presupposes an equal protection equally requisite at all times ; which is absurd. If we take the evidence of facts, and look round us, we shall find that such is not the case. The course of nature is one of constant change and

vicissitude ; and this being so, it follows that whether we look at the vegetable or animal kingdom, there must be times when existing species are more endangered than they are at other times. In times of dearth, flood, drought and pestilence, species must be more endangered than during genial and healthy periods. This seems undeniable ; and being so, it follows that any unvarying law of increase would be inapplicable and absurd ; because it might be barely sufficient for the exigence at one time, and ridiculously superfluous at another. It is not easy to conceive, that the Creator should so order as to let a species be destroyed for want of a sufficient protective law at one season or time, and at another force on a superfluity of existence, to be destroyed again from want of sustenance, without the slightest imaginable reason for so doing. In short, the supposition of such a law is to suppose the application of an invariable rule to ever-varying circumstances; which is an absurd supposition, and not in accordance either with the wisdom or benevolence of the Deity ; whilst a law that is efficient when wanted, and which is relaxed when not wanted, seems to be in strict accordance with a providential wisdom and benevolence, and equally well calculated for the protection and

benefit of created beings, of whatsoever description they may be. In short, as it seems to the author, a law such as he has described seems to unite the two desirable attributes of being, not only beautiful as an arrangement, but benignant as an instrument.

If, looking at the opposite effect of the law of increase and decrease now enforced, we consider the consequences of an arrangement for diminution and check at certain times, as well as for increase at others, we shall find them also to be plainly beneficial, and calculated to attain a desirable end. The author must admit, and he readily does so, that he is not prepared to state, with regard to the vegetable creation, what the effect of the highly plethoric state is upon the health of a plant. By analogy, however, it may be presumed to be probably injurious; because, if we look at the animal kingdom, as far as we have tolerably precise and minute knowledge, we find the highly plethoric state always injurious to the health of the animal. In the human animal, luxuriousness and over-feeding are generally admitted by physiologists and physicians to be the root of most organic diseases. With regard to domestic animals, the same truth is undeniable and easily perceptible; and if we seldom witness

it in animals not domestic, it is because their food is in general probably only apportioned to the labour they must undergo to procure it, and because our opportunities for observation are also few. Reasoning, however, upon what we do know, it is not difficult to perceive the wisdom of a check to propagation under circumstances of extreme luxuriousness, because by this provision the transmission of the organic disease is avoided. Thus, under this arrangement, let the danger come from which side it may, it is guarded against, and the species preserved from the risks of destitution or want of sustenance on one hand, and the perils of an unhealthy luxury on the other. Assuming this explanation of the providential benefit of the check here described to be the true explanation, it seems an inference highly probable, that to the vegetable tribes the high stimulus of over-sustenance and the effects of repletion are as injurious as to the animal. This is probable as an inference, because in the vegetable kingdom the check to propagation is as invariably, and more rapidly, applied when a state of repletion is induced in the plant, as it is to the living animal. Flowers, shrubs, and trees, planted in soils much too rich for them, almost immediately suffer, and cease to bear.

In the flowers the leaf becomes double, and the organs of reproduction are obliterated or injured. In trees the blossom is deficient and unfruitful. To suppose so marked an effect as this without a reason for it, is much the same as to suppose an effect without a cause, or that physical causes are not always accompanied by moral reasons—an idea faulty and untenable in itself, and repugnant to our conceptions of the infinite wisdom and prescience of the Creator.

Such are the beneficial consequences, as to the preservation of created beings of every species, of the arrangement here insisted upon; but if the author were to stop here, he would, as it seems to him, leave untouched a most interesting and extensive branch of this part of his subject, and fall short of the moral purpose which ought to form at least one of the motives to all sorts of literary composition. We have ascertained thus far how beneficially, as to the physical welfare of created existences, this scheme seems to be calculated to work; but on its tendencies and effects as to the well-being and government of nations, we have not touched. It comes next in order, to inquire, if this theory be true in fact, how and in what manner its natural consequences may be supposed to act upon the social condition of man-

kind, and upon the welfare of man as collected into communities of individuals, whose conduct, separately, has a certain action upon the happiness of the whole. Let us make this inquiry.

If it be true, as the author is well convinced it is, that population is checked or increased according to varying or opposite circumstances, it follows, as a plain consequence, that a community may suffer in two different ways, or from two opposite mistakes, as to their social condition. If, for instance, a nation be so circumstanced that its population has a general command, not only over the necessaries, but also over the luxuries of life, it may still happen that, whether this command be the fruits of mild and good government, or of great industry, or of peculiar position, or a combination of all or some of these advantages, this apparently fortunate situation may in the end be unfortunate if these advantages be abused. Evil may here arise out of a very superfluity of good; for if the bulk of a people indulge in luxury to an excess, the consequence must be, not only an effeminacy of mind and morals, and a decay of the public virtues which are necessary to the existence of states, but, in addition to this, an actual physical decay and diminution of numerical strength,

probably most rapid at the top of society, and extending downward as far as the luxury reaches in the ratio of its extent. Such States soon become the prey of other States, whose situation has not included the same tendencies towards national debility, or become the victims of some tyranny within themselves, which, in either case, works a sharp and bitter cure to an insidious disease. Such, beyond a doubt, is the true history of the fall of many States. It was probably the too great luxury which grew up in England under the dynasty of the Plantagenets, which lulled the English people into their submission to the vices and tyrannies of the Tudors. Thus, if we knew the particulars, in all probability, fell the Assyrian Empire; and by this process most certainly came the ruin of that of Rome. Let us glance rapidly over the circumstances, and we shall soon be convinced of this. During the earlier period of the Republic the same severe simplicity of life pervaded all ranks; and hence all ranks contributed their share to the strength and growth of the state. The consuls, generals, judges, and priesthood, were generally of the Patricians; the soldiers, the cultivators, and the skilled in the useful arts and handicrafts, were the free citizens of Rome and her

Republic. The gradual inroads of a more luxurious state of society, however, slowly altered this state of affairs, until, even in the time of the Gracchi, the decay of free Roman citizens in the provinces, and the increase of the lower and slave population, induced the two brothers to struggle for a revival of the ancient Agrarian Laws, and a better allotment of the tributary lands and territories. The degenerate republic was at last subverted, but under the empire, luxury still grew; and the end was, after many centuries, that the empire, both of the West and East, left to mercenaries for defence, crumbled under the blows of the Goths, Huns, and Ottomans, until there remained not even the shadow of a name. The fall of the luxurious Eastern Empire was characteristic. For years before the final doom, the entire population almost, of what was called the Eastern Empire, was gathered into a space consisting of the City of Constantinople, and a territory of about seven broad miles round the walls! They had, when their mercenary soldiers failed them, bought truce after truce, of their Ottoman invaders, until they had nothing left but the city and its treasures, and themselves, to give. Mahomet the Second stormed the city, and one day (the 29th

of May, 1453), sufficed to tread out the last sparks of the Roman Empire and its once omnipotent people. In this, and in other catastrophes of a similar kind, we see the origin of the notion of Montesquieu, that absolute monarchies contained in themselves some hidden and mysterious principle of decay, which was sure, in the end, to bring them to destruction. The assertion is correct, though he was ignorant of the steps of the process. He had failed to perceive the manner in which the exuberance of too great an abundance saps a population. It begins, like Tarquin in his garden, by thinning the tallest poppies, and so proceeds downwards through the whole diseased community. But the strength of monarchical and aristocratic governments lies in the upper and middle ranks. In these must reside the spirit of rule, which is to keep the empire together; and when these decay, the empire itself decays with them; for the military and domestic serfs are nearly, at last, all that is left; and deprived of their natural leaders they soon become inefficient or dangerous. So rapid was the decline in Rome, that though Julius Cæsar, to recruit the extinct nobility, ennobled a vast number of families, it was found requisite to repeat the operation by the Em-

peror Claudius; and soon after that time, we find Juvenal, in his Sixth Satire, hinting, and more than hinting, that, were it not for the amours of the Roman ladies with their slaves, and the palming of supposititious children upon their husbands, many of the noblest families would be without an heir!

> "Transeo suppositos, et gaudia votaque sæpe
> "Ad spurcos decepta Lacus, atque inde petitos
> "Pontifices, Salios, Scaurorum nomina falsô
> "Corpore laturos."
>
> JUVENAL, VI Sat., l. 603.

> "Why should I name suppositious heirs,
> "Snatch'd from the midnight lake? For such are theirs.
> "Hence, your Pontifices, your Salii, come;—
> "Your Scauri, chiefs and thunderbolts of Rome!"

"Nobilis Euryalum Mirmillonem exprimat infans!"

is another of his lines. It requires two of English to do it justice.

> "How sweetly mark'd the noble infant shews
> "Euryalus the Sworder's mouth and nose!"

Enough, however, of this part of the subject.

If, in those portions of this theory which exhibit the effect of luxury carried to excess amongst a people, may be discovered a political lesson, by no means to be despised, we may

derive one fully as important from those other portions of it, which go to explain the effects upon population of the opposite state of general destitution.

From this operation of the Law of Population may be deduced one grand and salutary axiom, and that is, that a long-continued depression, down to destitution, of a whole people, will, in the long run, be revenged on itself and those who caused it, by the superfluous and unmanageable pauper population which it is sure to generate. From the same facts, also, we may draw another axiom, not less important; and this other axiom is, that no kind of misgovernment is so dangerous and fatal as a fiscal tyranny, whether such tyranny consists in the prostration of the poor cultivators before the rapacity of the owners of the soil, or before the united exactions of government and landlord. In either case the fruit is, at last, an overwhelming and starving population, for which society cannot find either room, food, or employment, and who are, therefore, perpetually urged, by necessity and the pangs of hunger and want, to overset the government which has been the means of creating and placing them in this dreadful situation. It is very clear that this description of oppression is

infinitely more fatal and prolific of evil than were any of the ancient tyrannies, dreadful as some of them were. This is because their oppressions fell more upon individuals than upon classes. If a subject grew too rich, they robbed him; if he resisted, they murdered him; and what they coveted, they took. But elaborate misgovernment requires civilization as well as elaborate good government; and this point they never reached. Their taxation was direct and simple, not indirect and complex. Hence, however heavy, it fell mostly upon the richer classes, and no extensive masses of men were or could be driven by it into destitution. To do this, the multiform pressure of indirect taxation is necessary, which, by laying its imposts upon the articles of daily consumption, causes a people to pay imperceptibly some fiscal tribute upon every morsel, drop, or rag, which they eat, drink, and wear, as each article is consumed.

The system of serfdom and vassalage also, with all its evils, interposed between the serf and the vassal and his lord, by the very act of making them an actual property; and the Persian satrap, the Roman patrician, knight, or landowner, as does the Russian nobleman, reckoned his serfs amongst the number of his

cattle, and took care of their welfare on the same principle on which he took care of his other live stock. Hence, slaves are fully fed, whilst free labourers, as they are called, are often starved; because the master has a property in the first, which he has not in the last. If a man kills his slave, he has another to buy, as well as to find him victuals when he is bought. When a free labourer pines and dies, the master has only to offer the same wages, and the place is filled up. Who would care to lose a horse, if another walked into the stable free of cost, and was ready to serve for the same pasturage (how poor soever) as the last had. Thus, therefore, the very fact of being a distinct property, ameliorated the condition of the serf, and kept down their numbers; and hence it is, that hateful as feudal tyranny may be called, fiscal tyranny is still worse; both, ultimately, for those who oppress and those who are oppressed, inasmuch as the few oppressing thousands must be perpetually in risk from the starving and increasing millions.

Having gone into the foregoing considerations, as being the most obvious, first, the author will now turn to another view of some of the conclusions deducible from this theory, which, placing

as it does, the moral government of God in the world in a new and original light, may be presumed neither to be uninteresting nor unimportant. If we examine the infinite varieties, shades, and grades of the human character, we can hardly avoid coming to this conclusion, that there cannot (let theorists and visionaries dream as they will) be possibly such a state as that of equality of *conditions* throughout a country, or throughout the world. As long as men are endued with various degrees of talent, courage, industry, perseverance, frugality, generosity, foresight, virtue, and prudence, so long, as it seems to the author, must their worldly conditions vary. The prudent man will save more than the dissolute; the adventurous man grasp more than the timid; the persevering man will succeed after the timid has failed; the virtuous man will retain what the vicious man will squander; the overreaching knave will rob the simply honest; the cunning gamester will outwit the wild spendthrift; the sagacious schemer will outstrip the simple plodder; and the innate miser will save what the generous and humane give away. Thus, then, inequality of physical condition seems a part, and no doubt a necessary part, of the scheme of Divine Providence; for it is impos-

sible to separate inequality of mental gifts from inequality of physical results and consequent conditions. Nor is this distribution difficult to be accounted for under the benevolent scheme of a Divine Providence; when it is considered that the stimulus of bettering our condition may be one of the motives necessary to the complete exertion of all our faculties, and be as requisite to the action of society as is the spring to the watch, or the oxygen of the blood to the motion of the heart. Still, after giving due weight to all these considerations, it cannot be denied, that, upon the ordinary view taken of this arrangement, there yet remained a ground for cavil and repining. Still it was asked, why should so large a share of the goods of the earth be given to one class, and denied to those below them? It bore the appearance of an unfair monopoly. Here was a limited class of mankind handing down, as was commonly supposed, immense possessions to their posterity, unless some strange and equally to be deprecated violence interfered to change the transit, and despoil the heir of his wealth. From this objection it is difficult to escape, if the ordinary notion as to the progress of population be once admitted. Under the theory now brought forward, how-

ever, this objection vanishes, and the most equable distribution possible, under a system in which inequality at all is necessary, is proved to prevail. For if we look at society and its progress, as here described, we find that all increase is from beneath, and all decrease from above. The holders of wealth cannot maintain a posterity long to which to transmit it. Even "*old* families," as is beautifully said by Sir Thomas Browne, "do not last *three oaks!*" Hence the descendants of the poor, in an unbroken succession, are continually inheriting the possessions of the rich; and instead of being *entailed upon a class*, they in a perpetual routine fall to the lot of those to whom a country owes its increase of people—the poor, and the descendants of the poor. Thus, though there is individual inequality, there is no other inequality. The offspring of the poor inevitably, in process of time, become possessed of the accumulations of the rich; and then, in their turn, yield them, for want of heirs, to the children of those who have not yet become rich—a distribution so beautifully equitable, in the midst of apparent inequality, as to be calculated to excite the deepest admiration of all reflective minds. Whether riches, as some suppose, give happiness, or, as others suppose, the

reverse, it is clear the happiness or the misery is not the heirloom of a single class, but falls, in turn, to the lot of individuals of all classes; an equal distribution, and worthy of that Creator who, out of seeming disorder, can produce order, and is always found to do so, when man can scrutinise his ways. As some further corroborative proof of the truth of this view of the matter, the author may observe, that the estates which have most constantly descended in a long, unbroken, and direct line, from father to son or daughter, are supposed to be those small freehold farms, the property of the class known in England as the "yeomen," a class of men just wealthy enough to be happy, but not to be luxurious nor idle. In Cumberland and Westmoreland they were once numerous; and some exist still, which have been for centuries in the hands of one family. In Spain, especially in the Basque Provinces, they are numerous at this hour. Each possesses its substantial, but small, stone antique mansion; and to see their fertile valleys, studded with these houses, in the midst of beautiful pastures, tilled lands, vineyards, orchards, and groves of olives, is a sight which, to the eye of reason, outvies all the splendour of this world, and

realises, after the Fall, the nearest conception we can form of the Paradise before it.

The author now concludes. It has been his aim throughout the foregoing sheets, not only to demonstrate what is the nature of the laws which regulate the increase and decrease of population, but also to show that these laws are beautiful in their arrangement; that they are calculated to promote the happiness of mankind in their action; that any deviation from the course which they indicate to society as being proper to be pursued, is immediately or ultimately, but most assuredly, punished in its own after effects; and that the whole theory of population, as it exists in facts, is worthy of the benevolent wisdom of God, and in perfect accordance with His good providence as displayed in the other parts of our mundane economy. The accidental circumstances which led the writer of these sheets into the course of reasoning which he has attempted to follow out, he has detailed in a concluding chapter, deeming that method upon the whole, and for the reasons assigned, preferable to interweaving any account of them in the foregoing pages. His argument ends here; and he was unwilling to embarrass it with

anything extraneous, or of a merely collateral and perhaps questionable character. Whether he has succeeded or failed in his present attempt his readers will judge. If he be considered to have failed in his undertaking, he hopes to that failure will not be added the accusation of anything of arrogant assumption in his manner of pursuing it. If, on the other hand, he may, happily, be judged to have succeeded, as he would fain flatter himself he has done, he humbly trusts he may be classed amongst those who are held to be not unworthy of the sympathy of their fellows, and may be esteemed to have passed through life not undeserving of the respect of mankind.

CHAPTER XII.

SOME ADDITIONAL COLLATERAL CONSIDERATIONS, AND ADDENDA.

In writing this concluding chapter the author would, in the first place, wish it to be distinctly understood that these paragraphs form no part of his argument, nor are they intended to form any part of it. Many of the topics now touched upon are altogether extraneous; others have merely a collateral bearing upon the subject in question; and many of them are in themselves, as the author is well aware, extremely doubtful and questionable. Notwithstanding this, it seemed to the writer of these pages, upon the whole, useful, and not improper to give some account of the accidental circumstances which directed his mind to that course of inquiry which it ultimately followed. These circumstances are in

themselves not uninteresting, because they are somewhat singular; and though the considerations which arise out of some of them may not bear directly upon the question at issue, they yet bear upon it indirectly and collaterally, and, though in themselves doubtful, and only adduced as such in these pages, they are yet curious, and not unworthy, perhaps, of the attention of the physiologist or general inquirer into nature, of whatever name or description. It is proper to add, however, that in noting down, as he is now about to do, the peculiar circumstances which led him to the present inquiry, and the different views and conclusions, arrived at with more or less of doubt, which forced themselves upon his mind during its course, the author by no means wishes to assume to himself credit for any general knowledge of physiology or natural history. Quite the contrary. In truth, his knowledge of this class of subjects of human inquiry is extremely limited, and altogether imperfect; and he consequently deems no other of the ideas that have occurred to him as worthy of preservation, than as notions rather forcing themselves upon, than sought by, a mind accidentally engaged in a course of inquiry foreign to its usual pursuits. The particular circumstances which led to the

first conception, and ultimate completion, of the foregoing attempt, were as follows:—

Some years ago, the author of these sheets being (as has been already intimated) attached in some measure to gardening pursuits; being also early compelled, by the nature of his trade, to have some general knowledge of chemistry, and its more ordinary results; and having ample opportunities to put his inclinations into practice, amused himself with a few experiments to ascertain, if possible, the substance or substances which constitute the basis or stimulating principle of manures. It always was, and is still, his opinion, that our knowledge of manures, and the modes of their application in agriculture and horticulture, is completely in its infancy. He has long considered the knowledge of the moving principle of cultivation; that is to say, the accurate knowledge of the precise substances in which the vegetative stimulus actually resides, to be itself an uncultivated field; and, this being the case, it was not extraordinary that he should break ground in a quarter, where, as so little had been done, so much might be expected. From a promising soil, where the surface has scarcely been broken, the cultivators, however unskilful, naturally expect good returns; and such, pro-

bably, was the reasoning, and such were the motives that led to a series of experimentings, which, if they have produced little else, have, at all events, produced this book!

In pursuance of his course of experiments the author was, of course, led by the nature of his pursuit, to apply various substances which he either knew, or deemed likely, to contain in themselves, in combination, the active principle of manure, to various trees, plants, shrubs, and flowers, and to note the results. During this process, one result became, at last, strongly indicated to his mind; and this was, that, whatever might be the principle of manure, or the substance that contained it, an OVERDOSE of it invariably induced sterility in the plant, and, if the dose were increased, disease and death. When trees were overstimulated by manures they made a superfluity of wood, blossomed extremely scantily, and only towards the extremities of the branches, in situations farthest from the root; and finally, the blossoms rarely set, or produced ripe and perfect fruit. In cases of flowering shrubs, the same defect of flowers followed, and with annuals and other flowers, the flower frequently became what is called double, and ceased to seed. To recover trees

treated in this way, it became necessary to put an end to the overstimulus caused by the extra dose of manure by a reversed process. The tree was to be debilitated to a certain extent; and ringing the bark, extreme lopping, and trenching the roots, were the expedients. With plants and flowers a similar process of check or depletion, either by lopping, or, if greenhouse plants, by exposure to cold, was successful. The checked and debilitated plant flowered plenteously after a state of depletion; and the tree, after being lopped and ringed, began to bear. That the perfect indication of this law, in the increase or decrease of the vegetable creation, should lead the writer onward to an extended inquiry, was not only not unnatural, but almost inevitable. He was naturally induced to ask if the same regulation extended through animated nature? And, pursuing the inquiry, he found that it did so; that it pervaded the animal creation; and finally, was applied by his Creator to man himself. Still, in the midst of all the various phenomena, either indicated by actual experiment, or narrated by the various writers on physiology or nosology, which the author was induced to read, he found little or nothing to indicate the *modus operandi*—that is to say, the manner

or mode by which sterility in one case, or fecundity in the other, was brought about. That sterility in the human female was the frequent consequence of plethora, whether *positive* or *relative*—for so medical writers divide it—and that fecundity constantly followed the oppsite state, he met with abundant evidence to show. To physicians and anatomists, however, the immediate and proximate causes of sterility, or its opposite, appear to be as great a mystery as they are to the writer of the foregoing chapters. Thus, the writer of the article "Impotence," in the "Cyclopædia of Medicine," says, "In the city (Dublin), where misery, poverty, and starvation exist, to a degree perhaps unparalleled on the face of the globe, *procreation proceeds with extraordinary rapidity;* and it has fallen to the writer's lot, through his connexion with the Coombe Lying-in Hospital, to witness the birth of numberless infants, whose unfortunate parents had *not for years partaken of a wholesome meal.*" Here we have evidence of the fact of starvation and fecundity going on hand in hand; on this point the writer is decisive; but of *the mode* by which Nature causes prolificness in the female to be a consequence of a constant state of depletion, he gives no hint. The same knowledge of the

fact, joined with the same ignorance of the mode, is evinced by those writers who adduce barrenness as one consequence of a state of plethora in the human female. Thus Doctor Combe, in his work "on Digestion and Dietetics," gives the following instructive statement :—"A young woman of a healthy constitution, brought up in all the simplicity of country habits, passed at once, on her marriage, to *a less active mode of life*, and to a *much more elegant table*. In a short time she began to complain of irritability, lassitude, various spasmodic sensations, and habitual constipation. *Hypochondria* was soon added to the other symptoms. *Her hope of becoming a mother being always deceived*, an *additional* glass of wine, bark, and other tonics were ordered : the evil increased. The patient became *melancholy*, and believed that she was always swallowing pins. In the course of the year she became so emaciated and yellow that her mother, who had not seen her for eleven months, could scarcely recognise her. After an eighteen months' course of purgatives, and two courses of Marienbad water, she *entirely recovered*." Here is evidence of the *fact*, and of the strongest sort ; for the plethoric state here induced was "relative," and not "positive."

The appearance of a healthy obesity, which is "positive plethora," was not induced. The functions of life were, however, disordered to a great extent—disordered and clogged; the biliary, digestive, and excretory vessels could not act; and, as it should seem, those more minute ducts, on the free action of which conception by the female seems to depend, were partakers of the general constitutional derangement, arising from this overloading of the system. And here the author would respectfully ask those qualified by education and knowledge to answer such a question, What is there extraordinary in this? If a state of plethora can, as it is held it can, prevent the action of a gland or of a viscus, why should it not be a sufficient cause for the inaction of that finer and more minute apparatus upon the unimpeded state of which must, probably, depend the transit of the ovum from the ovarium to the uterus; or what of improbability is there in the supposition, that, during a state of unnatural obesity and repletion, this must be the case, and *vice versa?* These are of course questions for the anatomist and physiologist alone; and in suggesting them, the author would only guard those who treat of this subject, from confounding with a state of true plethora, that

apparent pinguetude or bloatedness of fibre which is a frequent accompaniment of debility, especially in the strumous constitution, which most writers hold to originate in debility—the consequence of deficient nourishment, and an unnatural state of depletion.

So much for the possible proximate causes of sterility in the female; but there is, perhaps, another cause of want of offspring, which may be referred to the male constitution as acted upon by diet, and to which, if indeed it be a cause, the author was led by some of the results of those experiments to which he has already alluded. After submitting growing vegetables to the action of various substances, known or supposed to be "manures," he at last arrived at one general conclusion; and this was, that all substances that contain portions, that is to say, sensible or considerable portions of any of the alkalies in combination with their other constituents, may be expected to act, and will, generally speaking, act as manures. It is not intended to be argued that their effect as manures is in the exact *ratio* of the alkali present. The results are, and evidently must be, modified in many ways. One compound may be more easily decomposed than another when in contact with the

roots of the plant. The components of the original soil may accelerate or retard this decomposition, as their nature may happen to be. The presence of lime, chalk, gypsum, or of strata containing marine shells, or other marine deposits, is almost certain to produce some effect upon chemical action. To produce a manure there must be present one or more of the alkalies; and hence all ordinary substances in which soda, potass, or ammonia, are known to be constituents, chemically act as manures. Thus the dung of all animals, the bodies of all animals, wood ashes, the cinders and ashes of coal, bones, calcined sea-weed, the waste ashes of the soap-boiler, the suds of soap, common salt, saltpetre or nitrate of potass, nitrate of soda, the decomposed bodies of fish, and the horny parts of animals, as well as their skins, are all found to act as manures, with more or less of success according to the other accompanying circumstances. Thus far the experiments made by the author invariably led, when other circumstances occurred which took him one step further; that is to say, to the belief that the alkali when it acts as a stimulant is *caustic*, or in part so. To this conclusion he came from observing the following circumstances:—In order to ascertain, if

possible, the true effects of soda as a manure, he applied to the roots of several bulbous plants, by dissolving in the water in which they grew, minute quantities of pure carbonate of soda. In the first set of experiments so tried, the effect upon the flower was extraordinary; it was not only doubled, but, to use a strong phrase, tripled and quadrupled, until in more than one instance the structure of the flower, to an ordinary observer, was totally altered. A second set of experiments tried at another place, however, produced no such results. The carbonate of soda, when in solution as before, hardly stimulated the plant, even when the quantity was increased, and it became evident that something remained to be accounted for. The author at last satisfied himself that the discrepancy arose from the circumstance of the water first employed holding *lime* in solution, whilst the water last employed was destitute of it, and in every way much purer and more free from extraneous substances. Hence the carbonate of soda, in the first experiment, gradually parted with its carbonic acid, and became caustic; whilst in the last, nothing being present which had a greater chemical affinity for carbonic acid, no causticity took place.

Thus, then, the conclusion was arrived at, that caustic and pure alkali is the basis, or rather stimulating principle, of *manure*. It is the principle which causes the seed to expand, the plant to push, and the work of vegetable growth to proceed. Whether the plant itself possesses the property of slowly decomposing, and obtaining it from the substances which hold it in combination, is a question to be solved. One thing seems to be certain, that where it is present in quantity, if it be not in excess, vegetation is stimulated by it. Pursuing the inquiry upwards, from the vegetable to the animal kingdom, the next question is—May not that which stimulates the *seed* into life, stimulate the *egg* into life; and may not one law, here, run throughout nature? In answer to this inquiry, there are certainly some facts that speak strongly in the affirmative; and these are, that alkali, that is to say *soda*, is found in the albumen of the eggs of birds, and also in company with *ammonia* in the "liquor seminalis" of animals, including man. Fourcroy, in his analysis of the "liquor seminalis" of a healthy man, detected both caustic soda, and ammonia in quantity; and since his time the presence of active alkali in this secretion, has

been placed beyond all doubt or question. Even pus (says Doctor Wright) formed in the substance of the testicle generally contains a free alkali (soda), and when the epididymis is implicated, dead spermatic animalcules are often detectable in the matter. Thus, then, there is ground for the supposition, at all events, that the neutralization or absence of alkali, in the male animal constitution, would be a direct cause of sterility, and its decided presence, *e contrario*, a cause of fruitfulness; supposing, in each case, the female to be prolific by constitution. Thus then, we come, as it were insensibly, to the consideration of the final step of this question, which is, whether the states which have been proved to be favourable or unfavourable to fecundity amongst mankind, are favourable or unfavourable to the development, in the constitution of the male, of those substances which are probably necessary to procreation? What is the tendency of an animal, or plethoric diet, as to the constitution? What is the tendency of a vegetable, or deplethoric diet, as to the constitution? In the answers to these questions will reside the proof of the probability or improbability of the foregoing considerations.

Now, then, if we examine the writings of the principal medical and dietetic authors, such as Majendie and others, we shall find the prevalent opinion to be, that a plethoric diet, that is to say, a diet of animal food and wheaten bread, with wine and sugar in combination, liquid or solid, is accompanied by a development of *acid* in the frame; whilst, on the contrary, a poor, unwholesome, deficient, or indeed mostly vegetable nutriment, tends rather to an *alkalescent* state of the body, from which acid is excluded. Of the true plethoric habit, the presence of severe and constantly recurring gout, is perhaps the most unerring symptom; and in this disease the development of acid is so striking, as not to be mistaken. The urine is overloaded with it, both previously to, and during, the fit. It forms deposits of chalkstones upon the joints, in combination with lime, which it obtains from the blood, or from the bone itself. In some instances an eruption, composed of lime and phosphoric acid, having the appearance of scaly scorbutus, saves the patient from gout. This was, for many years, the author's own case. In severe fits, the vegetable blues are turned red, when touched with the perspiration of the in-

flamed part. In many cases, cessation of gout is followed by gravel, of that sort constituted by a union of excessive uric acid with such lime and mucilage as the urine holds in solution. On the contrary, sea scurvy, the most dreadful disease caused by deficient and unwholesome nutriment, is known, in its last stages, to produce a highly alkalescent state; so much so, that "the urine turns blue vegetable infusions to a green colour." It may be indeed objected, that fruits and vegetables help to cure this disease; but this is clearly from their containing more or less of acid, which at once neutralises the alkali. Thus *citric acid pure*, if administered, produces immediate relief. The cure, however, is only to be performed by administering, with acids, nutritious and quickly digestive articles of diet. Hence *sweet-wort* is sovereign in cases of scurvy, as are whey and other diluents containing sugar, which of all nutriment is most concentrated and easy of digestion. Fresh animal food also is proper, for it is only from the use of meat that has lost all its nutritious qualities that the disease is engendered, increased, probably, by the salt with which the meat is cured.

Thus, then, a state of plethora, whether it is considered as acting mechanically or chemically upon the human frame, is probably indicative of barrenness or paucity of offspring. The state of depletion and debility, on the other hand, appears both chemically and mechanically to be favourable, in its effects both upon the male and female organization, to fecundity, or excess of offspring. That the considerations upon which this conclusion is founded, are of a general and vague nature, the author readily admits. They do not however, seem to be contradictory to any received facts, either of anatomy or nosology, but are upon the whole borne out by the writings of those versed in both. The conclusions which the author has deduced from them are in themselves general, and he trusts he has not laid upon them more weight than the premises are calculated to carry; at all events, it is by no means his wish that his readers should do so.

If it should be the fortune of this book to lead to a further investigation of the question, to medical men and physiological inquirers this part of the subject must of course be left. The author can only regret that it is not already in better hands, and subscribe to expression of wonder volunteered by the editor of the "Morning

Chronicle," in the course of a review of the former editions of this work, that no student of comparative anatomy should deem it worth his while to attempt to ascertain the actual mode by which, in all animals, Nature occasionally causes temporary sterility, or temporary fecundity, as each seems to be required by existing circumstances. Certain it is that the anatomist, who shall achieve this discovery, will obtain by it a reputation which most men may envy.

THE END.

POSTSCRIPT.

On putting forth before the world another edition of the foregoing work, it is natural that the author should wish to add a few remarks, in corroboration of the various conclusions to which he has come, or rather been led, by the evidence, as it unfolded itself to his view. On the general principles upon which his theory of the increase and decrease of population is built, he has, however, little or nothing more to advance. Whenever we look steadfastly at animated or semi-animated nature, we see (such is the care of the Creator, that no species shall be casually or accidentally extinguished) that prolificness, whether animal or vegetable, seems to vary in an *inverted ratio* with the quantity and quality of the nutriment afforded. Where both are deficient, fecundity is stimulated; where both are exuberant, fecundity is checked. So strikingly is this the case in the vegetable world, that the author may mention the very curious, but, to horticulturists, well-known fact, that *grafts* which have been taken

from a *dying tree* strike with far more certainty than those from a tree in full vigour; and that seeds, which have been *kept many years*, germinate, in the majority of cases, far more surely than those that are recent.

These, however, are matters of general principle; and of the universal truth of those upon which he has reasoned so many proofs have been adduced, that to bring more seems to be a work of supererogation. It is principally the author's wish to hazard, in the course of the present sheet, a few remarks upon some passages which have been put forth by more than one writer, since this work was originally published, and which bear upon, or tend to corroborate, some of the facts and reasonings contained in its pages. Amongst these the author would first wish to draw attention to what is stated by Mr. Laing, in his "Notes of a Traveller through France, Prussia, Switzerland, Italy," &c., a work of bold and manly thinking, and of close and keen observation. In citing the following remarks, it will be seen that the author does not adopt Mr. Laing's *solution* of the *cause* of the results which he so truly describes: that cause he asserts is to be found in the diminished offspring, resulting from the mode of living seen and portrayed by

Mr. Laing, and not in any "postponement" of marriage from the age of "eighteen to twenty-eight." The results, however, as proved by him, are invaluable, and these are they :—

"This parish of Montreux proves the very reverse of the conclusions of Sir Francis D'Ivernois as to the use of this false moral restraint on improvident marriage. It shows that economical restraint is sufficient. Our parish is divided into three comunes or administrations In that in which I am lodged, Veytaux, there is *not a single pauper*, although there is an *accumulated poor fund*, and the village thinks itself sufficiently important to have its post-office, its fire-engine, its watchman, and it has a landward population around. The reason is obvious, without having recourse to any *occult* moral restraint, or any tradition of the evils of over-population from the fate of the ancient Helvetians, as Sir Francis absurdly supposes possible, whose emigration, from over-population, Julius Cæsar repressed with the sword! The parish is one of the *most productive and best cultivated vineyards in Europe;* and is divided, in very small portions, *amongst a great body of small proprietors.* What is too high up the hill for vines, is *in orchard, hay, and pasture land.* There is no manufacture and *no chance work* going on in the parish. These small proprietors, with their sons and daughters, work on their own land, know exactly what it produces, what it costs them to live, and whether the land can support two families or not. *Their standard of living is high,* as they are proprietors; they are well lodged, their houses well furnished, *and they live well,* although they are working men. This class of inhabitants would no more think of marrying without means to live in a decent way than any gentleman's sons or daughters in England; and, indeed, less, because there is no variety of means of living, as in England; it must be altogether *out of the land.* The class below them again, the mere labourers, or village tradesmen, are under a similar economical restraint. The quantity of work which each of the small proprietors must hire, is a known and filled up demand, not very variable. There is *no corn-farming,* little or no *horsework,* and the number of tradesmen and labourers who can live by the work and custom of the other class, is as fixed and known as the means of living of the landowners themselves. There is no *chance living*; no room for an additional house, even, for *this;* because the land is too valuable, and too minutely divided, to be planted with a labourer's house, if his labour be not necessary. All that is wanted is supplied; and until a *vacancy naturally opens,* in which a labourer and his wife could find work and houseroom, he cannot marry. The economical restraint is thus quite as strong amongst the labourers as amongst the class of proprietors. *Their standard of living is also necessarily raised, by living and working all day along with a higher class.* They are clad as well, males and females, as the peasant proprietors. The costume of the Canton is used by all. This very parish might be cited as an instance of the *restraining powers of property;* and of the *habits, tastes,* and *standard of living* which attended a wide diffusion of *pro-*

perty amongst a people, *on their own* OVER-MULTIPLICATION. It is a proof that a *division of property*, different in principle from the *feudal*, is the TRUE CHECK UPON OVER-POPULATION."

In this passage Mr. Laing seems to place the check upon population, which clearly exists *somewhere*, in what he calls an "economical restraint" as to the *time* of marriage. And between the "moral restraint" of Mr. Malthus and this "economical restraint" he sees some distinction, which he does not very clearly explain. With this nice point, however, the writer of these sheets has nothing to do. He is perfectly contented with the undeniable FACT that population *is checked somehow* in this rich and happy parish, where all "live well," and where a "pauper" cannot be found to touch the "accumulated poor's rate" in the hands of the authorities! In truth, the author disbelieves entirely Mr. Laing's notion of the "economical check" being any "check" at all; and for this negative belief these are his reasons. Mr. Laing's check is clearly a supposed, and probably a real, delay of marriage until the age of *twenty-eight* or *thirty*, when a vacancy (as he remarks) "naturally occurs." That *twenty-eight* is the age to which he refers is evident in a subsequent passage, in which he says, "It is only in *Ireland* or *Sardinia* that the peasant sees no prospect of being better off at 28 or 30 than at 18; and,

therefore, he very naturally and properly marries at 18, so as to have a prospect of children grown up before he is past the age to work for them." The question, then, is, *how* it possibly can happen that a marriage at 28 or 30 can act as a "check" to over-population? In the author's opinion it cannot act as any check. In Switzerland, as in England, the age of child-bearing extends to forty, or beyond it, in the female. Supposing, then, these happy Swiss always to marry wives of their own age (no likely supposition), there is ample time for a family of half a dozen or more children. Nay, if we look at the result of Dr. Granville's table (chap. vi, p. 180), we have every reason to believe that a delay of wedlock, even for some years longer, could not have any such effect on population as Mr. Laing imagines. How, then, is this delay to "check?" If Mr. Laing's "economical restraint" had *prevented* marriage, and stocked the parish of Montreux, not with children, but with *old maids* and *bachelors*, then here would have been a palpable check. But no such thing! They all marry when "a vacancy naturally occurs;" that is to say, at the prudent period of "twenty-eight to thirty," an age which by no means forbids the procreation of a family of a dozen, if the con-

stitution of the parties admits of such a result. The truth is, it is the universal "good living," which Mr. Laing describes, that is the cause of this moderate population. It is the pastoral life and its fruits; the plenty of solid food; of milk, of cheese; and of wine, from the vine-yards, as well as grapes, that cause this result. If early marriages were the cause of surplus population, as Mr. Laing supposes, Sardinia, where the people marry "at eighteen," ought to show a different result. This, however, is not the case. In *Piedmont*, the numbers are only *twelve hundred and a fraction* to the square French league; in the *Island of Sardinia*, only *four hundred and fifty* to the same square league. In *Sweden*, the females, *unmarried*, above fifteen years old, are *fewer* in proportion than in *Ireland*. Yet in Sweden, where the people are well fed, population is stationary; whilst in Ireland, where potatoes are the food, it is rapidly progressive.

In a work, entitled the "Sanatory State of the Labouring Classes," by Mr. Chadwick, evidence of the prevalence of the same principle is very apparent. "Where mortality is the greatest (observes Mr. Chadwick) there is much the greatest fecundity." He gives the instances as

follows :—"In Manchester, where the deaths are *one* to *twenty-eight*, the births are *one* to *twenty-six*. In Rutlandshire, where deaths are but *one* to *fifty-two*, births are *one* to *thirty-three only*." Now, on what principle can this be accounted for, the author would ask, other than that laid down in the foregoing pages? Between deaths and births there cannot be any direct connection. The very idea is absurd in the extreme. Many deaths can have no agency to *cause* many births; nor can many births have any active causality to quicken and multiply deaths. We must, of necessity, therefore, seek for some active principle which causes both; and that principle is destitution. The state of depletion and debility which brings on premature death also quickens and stimulates fecundity; and it is clearly impossible to account for the undoubted facts recorded by Mr. Chadwick upon any other hypothesis. The author has been assured by a friend well acquainted with France and French society, that the same principle was frequently the topic of conversation there, though the facts were considered inexplicable. It seems that before the Revolution of 1789 large families were *common* in the provinces. Since that period it has, however, been observed that they are no longer so;

but that the exact contrary is the case. In short, since that period French population seems to have flagged, as compared with its former progress. Of the truth of the observation the author has no doubt. It is to be accounted for by the more minute division of land which the Revolution brought about; by the sweeping away of the most of the taxes and imposts; and by the greater consequent command over the solid comforts of life which the population from that time forward obtained. Four centuries since it was the reproach of the French nation, as given by Chief Justice Fortescue, that the "men at arms took the beeves, the sheep, and the pulleine (poultry), leaving the poor peasants only the eggs and the inwards (entrails)!" The tables are now somewhat turned. Many English labourers are eating oatmeal and potatoes, washed down with water; whilst the living of the French has been raised. The consequence is an increasing and surplus population in these islands; whilst, in France, the progress of population has flagged and fallen off. So much for the effect of repletion upon fecundity!

The author would now offer a few remarks upon certain objections to his theory, brought forward in a very interesting work by the late *Dr. Charles*

Loudon, of *Paris*, and published there under the title of "Solution du Probleme de la Population et de la Subsistance." These objections, however, it must be noted, are not put forth in reference to this book, which Dr. Loudon had not seen when his own work was published. They are caused altogether by the *sketch* or *outline* of the theory, published in *Blackwood's Magazine* for March, 1837; in which it is, of course, imperfectly laid down, and left, in a great measure, not only undemonstrated, but unexplained.

Treating of the tendency of a *fish diet* to stimulate population (which it certainly does, owing to its poverty as an *exclusive* sustenance) *Dr. Loudon* thus remarks:—

"Dans bien des départements de la France, situés le long des côtés maritimes où *le poisson* abonde plus que dans les départements de l'intérieur, les habitans *ne se multiplient pas plus vite* que dans le centre du royaume; et, en admettant que cette réponse ne soit pas assez convaincante, de ce que les habitans de l'intérieur se nourissent *principalement de végétaux*, néanmoins, si nous comparons la France et l'Angleterre proprement dite dans leur situation actuelle, l'état de la population des deux pays milite aussi contre les opinions de M. Doubleday. Relativement à la population, il se consomme en Angleterre plus de viande qu'en France; car sur les 34 millions dont se compose la population Française, il y en a les deux tiers qui ne goutent jamais *de nourriture animale* plus d'une fois par semaine; beaucoup même n'en font jamais usage. Et pourtant l'Angleterre *double* sa population *tous les cinquante ans*, tandis que la France *ne double* la sienne que tous *les cent trente à cent quarante ans.*"

With regard to the remark that the inhabitants of the coasts do not multiply faster than those in the interior, it is only necessary to reply that

there is no reason why they should, unless they lived almost *exclusively* upon the fish which their coasts afford. But this is not the case. Fish bring high prices in France, and those who catch them live upon the money so obtained, as the rest of the population live. For a diet of fish to develope its effects on the human constitution, the people must be driven upon it for subsistence, as is the case in the western islands of Scotland, where it forms a principal nutriment, and where the population is only relieved by constant emigrations going on. With respect to the comparative use of *animal food* in France and England, Dr. Loudon deceives himself by words. It is, no doubt, true, that what Dr. Loudon means by "animal food," that is to say, joints of solid beef, mutton, veal, or pork, is less frequently seen in France than in England. The climate of France, in fact, forbids this. Their beef is too lean to be thus dressed; and consequently, instead of the leg of mutton or bit of roast beef, so common upon the tables of the English middle classes, the French deal in soups, bouillis, haricots, ragouts, stews, and hashes, of which Englishmen in ordinary life know nothing. But it is not upon a comparison of the diet of the *middle classes* of France and England, who both

live abundantly, though differing widely as to modes of cookery, that this question is to be determined. If we take the labouring classes, we shall find no such equality of good diet. In England, the working man may sometimes dine on bacon, but he rarely tastes beef or mutton; and, in default of being able to afford bacon, what is his resource? Oatmeal or potatoes, with a beverage of weak coffee or tea, or, perhaps, simply water; for eggs, poultry, cheese, milk, and beer, are, in too many cases, beyond his reach. This is quite notorious; and it is not long since *Lord Congleton*, in open Parliament, stated *beer* to be "a *luxury* in which the poor toiling labourer ought not to hope to indulge!" Now, what is the position of the French general population? Barons of beef and saddles of mutton, quarters of lamb or loins of pork, are, doubtless, things not familiar to their eyes. But they have their proportion of *lean beef* in all parts of France; they have mutton, ill fed, perhaps, in English eyes, but wholesome. They have pork, fresh and salt, *in abundance*. They have ample supplies of *cheap* grain, including wheat. They have all sorts of poultry, including turkeys, geese, ducks, game, &c., with their eggs, to a degree of plenty wondrous to an Englishman.

They have cheese, and milk, and butter, at moderate prices. They have ordinary vegetables and fruit in exuberance; and, above all, they have the *grape* and the *olive*, and their rich and generous oleaginous and vinous products. Here are materials for general good living quite sufficient to account for the moderate populousness of France, which is *most moderate* in those provinces which are richest in these products, and *most dense* in those districts where they are scarcest. If to their recourse to these things were added an every-day proportion of that which Englishmen mean by the term "solid food," the population, instead of keeping its ground, would *decrease* and *decay*, as it undeniably did in England, when "beef, mutton, pork, and veal was the food of the common sort," and when Acts upon Acts of Parliament were passed to cure, if possible, the decrease in inhabitants and in habitations that was palpably going on, and which went on probably, through more than two centuries, though most apparent about the time of Henry VII.

At page 311 of his Treatise Doctor Loudon again observes:—

"La théorie de M. Doubleday est aussi réfutée par ce que nous voyons aux Etats Unis d'Amérique et dans la Russie. Tous les Américains avec lesquels je me suis entretenu sont d'accord que dans *les divisions occidentales* de l'Union, l'Illinois, l'Ohio, et Wisconsin, par exemple, il y a beaucoup *plus d'enfans nés* que dans les *premières et les plus ancièn-*

nes colonies, telles que New York, Massachussets, et Hampshire. Dans les Etats occidentaux, le terme moyen des naissances, pour chaque famille, s'élève à *six* ou *sept* enfans ; et l'on a attribué et je crois pouvoir le faire justement, ce grand developpement de population à ce que les habitans ont une grand facilité à trouver des vivres, non seulement provenant *du règne végétal*, mais une abondance *de substances animales*, 1. dans leurs maisons, à cause du peu de cherté de la subsistance, c'est à dire, ce qui est nécessaire à la nourriture des animaux domestiques ; 2. par la grande quantité *d'animaux sauvages ;* 3. tout homme possédant *un fusil* peut abattre autant de gibier qu'il le désire ; et de plus, les riches salaires des industriels les mettent tous en position de se marier de très bonne heure."

Here, then, it appears that in the *newer* and *half-settled* Western States of North America, the families are *larger* than in the *older* Eastern States of New York, Massachussets, and New Hampshire ; and the question to be asked is, *What* is the cause? Dr. Loudon's informants, and he himself, attribute it to the quantity and cheapness of ordinary domestic animals ; to the quantity of game, and to the general certainty with which an active man, an "industriel," can pick up a living in these districts, and their consequent early marriages. Now this, at first, *sounds plausibly;* but are we deliberately to believe that the life of a new settler "far west," or Ohio or Illinois "back-woodsman," is *better* than that of a citizen of New York, New Hampshire, or Massachusets ? This would be a strange conclusion at which to arrive. Are the toil, the exertion, the constant exposure to weather, which the life of a new settler entails, to pass for nothing ? True, he

marries early; but the extreme difficulty of getting "helps" in these circumstances, compels his wife and children to a life of perpetual exertion from the cradle to the grave; and this will neutralize the tendency to repletion which the articles of diet, if obtained as in more civilized society, would induce. True, the game is eaten, and so are the poultry, and the maize, and the occasional sheep or calf; but the game is to be hunted by those who enjoy it; the poultry are to be housed; the corn is to be planted, fenced, and reaped; and the carcass of the wedder or steer to be cut up, salted and dried, as well as boiled or roasted. Hence, the life of the new settler is really one of *toil*, because his *all* is the produce of the direct and constant exertions of himself and his family; and, in the effects of this constant exertion and exposure, is to be found the real cause of the greater fecundity which these states are seen to exhibit. With respect to Russia, its general statistics do not bear out Dr. Loudon's views. In proportion to its *area* it is the most *thinly peopled* country on the globe; and where the produce is cattle exclusively, the population is thinnest. With respect to Belgium and Holland, Dr. Loudon quotes M. Quetelet, who says, "Dans

les Pays-bas, la nourriture animale est aussi plus abondante qu'en France, et cependant les naissances sont dans la proportion de *seize* et *dix-sept* dans la Belgique et la Hollande, à *quinze* les départements Français." This may possibly be the case; but in seeking for causes, we must never overlook the political position of a people, which may totally neutralize their natural advantages, as is now the unhappy case of Ireland. It is probable that M. Quetelet refers to circumstances created within the last quarter of a century; and, during that period, Belgium has grievously suffered from a forced conjunction with Holland. Her natural advantages have, for a long time, been dragged from her. Her corn and her cattle have been absorbed by Holland, ever dependant upon foreign supply; whilst the Dutch, eager to rid themselves of the weight of their growing debts and excessive taxation, remorselessly let loose their tax-gatherers upon the unfortunate Belgians, who had come under their sordid yoke. That the lower classes of Belgium might, by this process, be driven to a degree of poverty sufficient to stimulate fecundity to the extent asserted by M. Quetelet, as compared with the richer departments of France, is possible enough. In England we see every advance in

the prices of the first articles of subsistence followed, at once, by a *decrease* of *marriages* and an *increase* of *births*. In Belgium, similar causes would produce similar effects, modified, of course, by the varied habits and usages of the people.

Dr. Loudon's last objection is with regard to the *cause* of that tendency to extinction which exists amongst the nobility and richer classes of all countries, which he explains as follows :—

"Je ne veux pas quitter ce sujet sans donner une nouvelle explication de sa véritable cause, c'est-à-dire, comment il se fait que les familles des *hautes classes et des moyennes viennent à s'éteindre*, tandis que *celles des pauvres font plus que se maintenir ;* surtout comme me l'assure un de mes amis d'Edimbourg, homme très estimable et rempli de talens ; que lui-même et beaucoup d'autres, à la lecture des idées de M. Doubleday, furent convaincus de la fausseté des opinions de M. Malthus, et se rangerent du côté de M. Godwin, qui pretend que, sous le rapport de la population, il le manquait plus dans les institutions sociales qu'un changement qui mit à la portée de toutes les familles l'abondance des choses nécessaires à la vie. * * * *
Et pourquoi *cela ?* Ce n'est certainement pas à cause de l'usage de la viande qu'il faut l'attribuer. *La grande raison dominante* consiste dans *les mariages tardifs*, et la nature désavoue ces retards."

The *great* cause of decay in nobility is here asserted to be their *late* marriages. Now, it seems to the author, that this idea of late marriages amongst the higher and privileged orders has been hastily adopted by Dr. Loudon, and is not borne out by facts. It certainly is *not* true of the *ancient* noble Romans, who married early, and divorced their wives if barren. In order to arrive at an approximation to the truth, as regards the English nobility and gentry, he

adopted the following method. Turning to "Burke's Peerage and Baronetage," he took, *at random, two hundred and fifty names*, preferring only, in general, the English names. These names he divided into parcels of ten, eleven, or twelve each; and *averaged* from *each parcel* the age of marriage. He then, out of these averages, calculated a *general average* of the *whole two hundred and fifty*. The results were, that amongst the parcels, the *highest* average was *thirty-two*; the *lowest, twenty-five*. The average for the whole gave *twenty-eight years and four months* as the "marrying age." Of the two hundred and fifty, *one hundred and forty-five were noblemen; the remainder baronets.*

This must be a near approximation to the truth; and when we consider, besides, that these classes, with very few exceptions, *do* marry *some time*, and, in most instances, marry females much younger than themselves, there seems to be no ground left for attributing their decay to a retarded matrimony. At least, the author cannot admit any. He must continue to attribute, as he has done, the undeniable diminution of their families to fulness and ease of living; and the more so, because when a similar fulness and ease were diffused over the community at large,

that community decayed just as palpably. When we consider the origin of the townships and the common lands, we at once see that, through all the rural districts, and out of the borough towns and cities, every man, master of a family, must, up to a tolerably late period, have held his dwelling and garden, with a right of pasturage, either in freehold, or on some easy and almost nominal tenure, which, joined to the high rates of wages, must have made him a substantial man. Grose, in his "military antiquities," confirms this, by showing from the *military codes*, up to the sixteenth century, that *minor offences* were *all punished by fine*, because "in these days *common soldiers* ALL possessed property." That some of them served as substitutes for richer men is true, but this is only true of a smaller portion. The military codes, however, of our Edwards and Henries supposed *every soldier*, either in himself or through his parents, *to possess tangible property;* and hence all *minor* military offences were punishable *by fine and by fine alone!* Yet, in these very days, did "depopulation" show itself so manifestly as to alarm, and justly alarm, both the nation and its legislature through a long series of years.

The author must now conclude; but before

doing so, he must warn his readers against taking *individual cases* as evidence either for or against a theory on a great subject like this. It must be remembered that constitutional debility of various kinds, in all classes, is liable to interrupt the general tendencies of modes of life; and especially amongst the rich, the sedentary, and the luxurious. Habitual indigestion, habitual torpor of the intestinal canal or hepatic apparatus; constitutional irritability of nerve; a defective glandular system; and many other morbid peculiarities, will neutralize the effects of diet in particular cases, and produce the opposite. Excessive bodily exercise, or excessive anxiety, will produce a similar counteraction. But this is the exception, not the rule; and only proves that the debilities arising from luxury sometimes counteract even the very effects which ordinarily spring from that very luxury; a principle quite in accordance with all that is here attempted to be laid down. Whether the theory here propounded is destined to be generally received, it is not for its author to anticipate. If it be true, as he is confident it is true, that which is founded in truth must ultimately prevail. Be it so. The author, at least, may promise himself that, from the moral consequences which flow from it,

society has nothing to dread. It is, at all events, in strict accordance with their writings who put the welfare of the many in the first rank and file of duty and of policy, and who prophetically denounce, in the fulness of time, "Woe unto them who turn aside the needy from judgment, and take away the right from the poor of my people!"

Newcastle-upon-Tyne, Sept. 24, 1842.

POSTSCRIPT TO THIRD EDITION.

It is the author's wish and intention merely to hazard a few brief observations in reply to certain objections, direct and indirect, which have been brought against the theory laid down in the foregoing pages. And, first, he would answer the objections embodied by M. Villermé, member of the French Institute, in his Report on the second edition of this work, laid before that body, and printed in the year 1844. The reader will please, first, to note that these objections are levelled altogether at some of the minor proofs, adduced in the former editions, in support of the then new theory of Population; leaving untouched the great body of undeniable facts upon which the hypothesis is based. It will be also noted that the French philosopher appears, in some respects, to have mistaken the bearing of some of the facts adduced, and consequently reasons from erroneous premises.

The objections of M. Villermé, taken *seriatim*, appear to be as follows :—

I. M. Villermé objects that graminivorous animals are not on the whole more prolific than carnivorous animals.

II. That Count de Buffon has, in his works on natural history, asserted and adduced some reasons to prove that animals when well fed are more prolific than when underfed.

III. That the breeding season with many animals takes place when food is naturally most abundant.

IV. That M. Benoiston de Chateauneuf has adduced facts to show that certain tribes living mostly on a diet of fish are not more prolific than tribes living on a mixed diet of flesh, fish, and vegetables.

V. That it is not true that more births happen nine months after lent (as observed by a French physician) than at other times; and that, in some Lutheran countries, such as Sweden, where lent is unheeded and not observed as a fast, there are yet more births in the winter than in the summer months.

VI. That the annals and statistics of France do not prove that famines were, in past times, followed by an increase of births.

The author now addresses himself shortly to reply to these objections in the order in which they stand.

First, with regard to objection as to carnivorous and graminivorous animals, the author would observe that M. Villermé has mistaken the tendency of what has been advanced. The author has asserted, and still asserts, that the human male and female are much more prolific when confined to a vegetable diet, especially a diet of meagre vegetables, than when fed on a diet wholly animal or else mixed; but he has never asserted, nor does he mean to assert, that graminivorous animals, because they are graminivorous, exhibit a fecundity greater than that of carnivorous animals. All that he asserts is, that the graminivorous tribes, if fattened upon the food natural to them, are sterile; and only become prolific when lean; and that the same is true of carnivorous animals; and for the truth of this he has appealed to the experience of all breeders of animals. The cow, which is graminivorous solely, becomes sterile when fat. The sow, which is partly carnivorous, also becomes sterile when fat; and both require to be made lean to render them prolific. The same is true of the mare, the ass, the ewe, and the rabbit, as well as of

the doe or hind. Buffon is known to be a fanciful and an amusing, but certainly not an accurate writer, and his conclusions are often at variance with the actual facts. For instance, it is true that the breeding season of the cow and the hind come on when their food is plentiful; and this is true also of some of the tribes of phocæ. But then it is also true that this breeding season is, with these species, accompanied with conflicts which cause a cessation from feeding, and thus prepare the animals for conception. Amongst herds of deer the males fight furiously for many days for possession of the females, which on their part run about in a highly agitated state during these battles, neglecting their food and becoming as lean as the males. With wild cattle the same process is gone through; the strongest bulls drive away the weaker, after long and severe encounters; and with most of the tribes of phocæ the same scenes occur. The males fight furiously, inflicting dreadful wounds and receiving them from their opponents, and the whole shore is described by navigators, who have witnessed this singular and extraordinary spectacle, as resembling a field of battle; so violent is the contest and so intense the confusion. The result is, that from the extreme

of fatness these tribes, like the hind and cow, become lean for a brief period; after which they gradually recover their condition, and produce their young. The fourth objection relates to a work of M. Benoiston Chateauneuf, which the author has never seen. If M. Chateauneuf, however, merely asserts that Greenlanders, Esquimaux, and other northern tribes, who exist in part by fishing, are not more prolific than others whose mode of living is different, the author is ready to admit that this may be true. At the same time, he must remind his readers that there is a distinction to be drawn betwixt a diet of meagre vegetables and fish, and a diet upon oleaginous fish, or marine animals, and vegetables. Where the olive and its oil, the grape and its products, and the different preparations of wheat and Indian corn are largely used, plethora is induced as surely as by a diet of animal food mixed with meagre vegetables; and an Esquimaux, a Greenlander, or a Finlander may become as plethoric upon the flesh of the whale and seal, or upon the sturgeon and the salmon and herring, as an English alderman upon turtle and venison.

With regard to the fact that, in Sweden and other northern countries, there are more births

in winter than in summer, whilst in other but Catholic countries, such as Italy and France, this is not observed, it is not, in the author's opinion, difficult to be accounted for. The truth is that, in modern times, Lent is not rigorously observed, even in such countries as Italy; whilst in Sweden, Denmark, Norway, and all very cold countries, the nature of the climate causes the whole of the *hard work* to be done, almost without any exception, during the summer months, whilst winter, in these countries, as in Canada and New England, is a period of comparative indolence and festive enjoyment. This is the cause of summer being more favourable to conception than winter; throwing thus a majority of births into the period between September and April.

The subject of famines may be viewed under various aspects. Much must be known of the social position of the country in which a famine happens, before we can decide with any certainty as to the probable effects of that season of dearth. In a realm in which wealth is generally diffused, a famine may occur without much increasing population. Food may become for a season even extravagantly dear, without producing this consequence; and if, in addition to this, the Church, as was was before 1789 the case in France, have

great resources to which the needy and suffering can apply for aid, then may the stimulus to population be again in this way diminished. Thus, although from the reign of Henry the Third to that of Henry the Eighth, more than one great scarcity occurred in England, there is every reason to believe that, throughout the whole of that period, the numbers of the English population were imperceptibly declining, until, about the accession of the Tudor family, the decay of people, and of the towns and villages which they formerly occupied, became palpable and alarming. In the reign of Elizabeth, the change from pasturage to tillage commenced; and this change in the nature of their diet, aided by the introduction of tea, coffee, and sugar in quantity, gradually lessened this alarming tendency to decay. A century later, the fiscal oppressions of the Long Parliament and the Cavaliers, began by the introduction of the excise and other incident imposts, to cut down the former resources of the people; which process was immensely accelerated by the introduction of the funding system by the Whigs and William the Third; after which population began again to increase, and has done so ever since. In cases of famine, much therefore depends upon the re-

sources of the people, enabling them to mitigate the pressure of the high prices; and that the wealth of the Catholic Church in former times enabled them to do this to some extent, is not to be doubted. In case of long-continued and excessive dearth, however, the increase of births during the year ensuing may be prevented by the numbers of actual deaths caused by want and disease. In such cases the increase of births is not observable until the second or third year after the scarcity; and this is probably the case in some of the instances cited in the Report of M. Villermé, as in some of them an increase in these years is exhibited.

Coming nearer to our own times, M. Villermé's statements seem to corroborate the view here taken. In the Pay-bas (as appears by *Rapport*, p. 14) 1816 was a year of considerable scarcity. In that year the marriages were 40,800, and the births of 1817, the results of the conceptions of the year before, were 177,555. But the year 1817 was, in the Pay-bas, one of absolute and severe dearth. M. Villermé terms it "*Année d'une véritable disette.*" In this year of veritable famine, the marriages are *diminished* to 36,881, whilst the births of the following year, 1818, which are the results of the conceptions of

the "Année d'une véritable disette," are *augmented* to 183,706—no bad proof of the truth of the theory which M. Villermé hopes to combat by means of this very report. Upon the whole, the author cannot consider these objections as entitled to any weight. M. Villermé sums up his animadversions by saying, "Enfin, l'impression qui reste de la lecture de l'ouvrage de M. Doubleday c'est que, s'il a tiré sa théorie de l'observation de plusieurs faits, il a ignoré ou complètement négligé plusieurs autres faits qui contrariaient cette théorie. Il resulte encore de ce long exposé que, si la question des causes qui exercent une influence sur notre fécondité est l'une des problèmes sociaux plus curieux, il est, en même temps, l'une des plus complexes." Upon this the author can only say that, if the facts or supposed facts, adduced by M. Villermé, comprise the whole of the "plusieurs faits" militating against him, he is willing to leave the result, without another word, to the decision of his readers, whether French or English, thanking M. Villermé, at the same time, for the exceeding courtesy with which he has advanced his objections.

The author will now venture a few brief remarks on the positions of a very erudite

review of the "True Law of Population," and some other works of the same class, published in the "Westminster Review" for April, 1852, and since reprinted in a separate form, under the name of "Herbert Spencer." It is not easy to evolve the exact doctrine of the reviewer from the load of learned diction in which they are enunciated. As far as the author can disentangle them; they seem to be these:—The reviewer does not directly deny that some such principle as that laid down in the "True Law of Population" may exist; but he argues that it is insufficient to account for all the facts, though it may account for some. He also objects to the theory that it contains no "principle of compensation"—a fault which he, perhaps rightly enough, deems all but fatal to any theory of this kind. He then goes on to prove a new principle of his own, which seems to be founded on organic and (in animals) nervous development. He quotes a great many instances to show that, in the vegetable world, the simpler structures are the most prolific. In the animal creation, he affirms that prolificness is in an *inverse ratio* with the nervous development; and that the larger-brained animals are less prolific than those in which the brain is less developed. This principle

he applies to man; and roundly asserts that intellectual development is the only or great check to human fecundity; and that in proportion to this development the species becomes sterile. The development is to be gradually brought about by the increasing difficulty of making a living or finding room for the species; and the compensation resides in this: that, after the world is peopled, the development will just have reached the point of entire sterility when further increase would be an evil.

Upon this somewhat (as it seems to him) fantastical theory the author will say a very few words. In the first place, the assertion that fecundity, even in the vegetable world, is an inverse ratio with development is really gratuitous. It may be perfectly true that the simpler structures *are* more prolific than the more elaborately organised structures; but it by no means, therefore, follows, as a consequence, that the simplicity of structure is the *cause* of the fecundity. It seems obvious enough that, all through creation, from the simplest vegetable up to man, the simpler forms came first, and are still wanted in greater numbers than the more complex. We want a million of blades of grass for one tree: and myriads of fish or animalcules only make a

mouthful for a whale. Greater prolificness has, therefore, been *superadded* to the simpler forms of life; and gradually withdrawn from the more complex: but neither the simplicity nor the complexity appears to be *causes*, as far as the rate of increase is concerned. In fact, as far as we know, plants obey the principle laid down in "The True Law of Population" as surely as animals do. They become more and more sterile, under an aliment too rich; and more and more rapidly increase under an aliment too poor: and this is probably true of all vegetables, marine vegetables as well as the rest; but these last it is difficult to render available to experiment.

Neither does it seem to be true that, amongst the higher animals, the reviewer's rule holds universally. The rhinoceros, for instance, has the smallest brain, in proportion to his bulk, of all the quadrupeds; yet he is not more prolific than the elephant, or the horse, or the cow, or the elk. Other instances might be adduced; but these will at once present themselves to those who have inquired into the comparative anatomy of the quadruped tribes. If we come to man, the reviewer's rule seems totally to break down, as far as past experience can prove anything. For instance, Sir John M'Neill compares

twenty-seven parishes in the West Highlands, with the same number in the East Highlands. These people are all of one race, living under the same climate, laws, and customs; of the same religion, and similar in all things save one—PROSPERITY. The western parishes have, by various circumstances, been reduced to indigence, from which circumstances of various kinds have rescued the eastern parishes. Now, according to the reviewer's rule, the western parishes having more to contend with, ought to have been better "developed," as to brain and nervous system, than the eastern parishes, and, consequently, ought to have *declined* in numbers. What is the result? Precisely the contrary. The poor western parishes have *increased*, during a century, by more than *a hundred per cent.*; whilst the prosperous and comfortable eastern parishes have *diminished* in population nearly *one-third*, during the same period. If we look at Slade's account of Malta and Turkey, we find similar phenomena. The luxurious and indolent Turks, to whom care is almost unknown; who despise literature and science, and pass a slothful existence by aid of the pipe, the harem, the coffee-house, and the mosque, are *declining* in numbers; whilst the poor Maltese, who are daily struggling

for a bare existence, as rapidly *increase*. In short, as it seems to the author, all experience is against the reviewer. The British House of Lords, but for constant new creations, would soon dwindle to nothing; and yet are we to conclude that this branch of our legislature have been, through many generations, harder put to it to obtain a living, than the descendants of the mutineers of the Bounty upon Pitcairn's Island, or than the poor inhabitants of the huts of the south of Ireland? The same is true of all aristocracies. It was true of the Roman nobility: it is true of the Venetian nobility. It was true of the Spartans: it was true of the Mamelukes. Are we to conclude, then, that the brain of all these men has been more developed by struggle and difficulty than that of a Roman slave, a Spartan or Athenian helot, an Egyptian Copt, or a Venetian gondolier? But unless we so conclude, what is to become of the theory of this reviewer?

Upon this theory, which is totally opposed to facts, as far as such can be ascertained, the author feels no inclination to dwell much longer. To the charge of a want of compensating principle in his own theory, he must, however, say a few words. Strange to say, its ultimate result

is the same as that of the theory of the Westminster Reviewer, being only brought about by more simple and obvious means. As long as the human species is by any means endangered, whether through the operation of imperfect systems of agriculture, or through the exactions of tyrannical or mistaken governments, then does this law of population step in to neutralize these risks by quickening the rate of increase. If, on the other hand, the danger results from national luxury, it again steps in and checks the transmission of disease by inducing sterility. If, however, debility, glandular or nervous, as is often the case, be the consequence of luxury, in these cases the reproductive principle again acts, as it were, in the last resort; and debilitated parents produce a numerous but debilitated offspring, some few of whom, by care, continue the race. Thus, therefore, as long as oppression of any kind shall exist, and as long as mankind shall, through their own mistakes, be subjected to national privations of any kind, famines or pestilences, so long will the law of population quicken reproduction in order to repair the mischief; whilst, on the other hand, it punishes national indolence and luxury by a decay of numbers, which, beginning at the top and affect-

ing all the luxurious classes, gradually undermines and destroys the commonwealth. If, however, we assume a time when government shall attain perfection and nations cease to encroach upon each other; and when the whole social system shall be, as it ought to be, equally free from oppression and inaction, and enlightened by science in all departments; then, in that case, will population become stationary, and the decay of nations on one hand, and their morbid increase on the other, appear no more. But this will be effected by means of an enlightened national morality, which shall preclude luxury on one hand, and oppression and destitution on the other; which, on one side, shall prevent undue accumulation, and on the other secure to men the fruits of their labour, always sufficient; and not by a development of the nervous system, which neither experience nor logic can prove to have anything to do in the matter. With regard to the reviewer's remarks and speculations as to what *is* life, however ingenious in themselves, they seem totally irrelevant as applied to this question. On this recondite matter the author has opinions, perhaps based on considerations as philosophic as those of his critic. *How far* sensation extends, and *in what* it is inherent, are

questions eminently curious and profound; but quite apart from the law of population, and therefore no element of the present inquiry. Materialism and investigations into "nervous systems" will not solve them; but being totally abstracted from the phenomena which accompany the increase or decrease of that which *we call* vegetable and animal life, the introduction of such questions seems to the author to be either a mere impertinence, or else a needless complication of considerations naturally quite apart from each other.

There remains one other topic upon which, however painful the task may be, he feels it due to himself to say a few words. The reader will perceive, by a reference to the preface to the earlier editions of this treatise, that its author was first led to doubt the truth of the theory as to population, then unhappily prevalent (that of Malthus), by the remark of a revered relative, many years ago deceased, who deemed its consequences so revolting and so injurious to the character of an all-benevolent Deity, as to render it on that ground alone utterly incredible, although its falsehood might not be demonstrable by other methods of reasoning. Strange to say, this conclusion, certainly not derogatory either to the reason or piety of him who arrived at it, has

been sneered at by a dignified divine of the Church of England, who in the same breath avows his belief (now happily singular) in the disgusting and truly absurd assumptions of Malthus.* A sneer of this nature the author should not have deemed worthy of notice, had it come from any less conspicuous personage than the Right Rev. Dr. Whately, Archbishop of Dublin; and had that Archbishop not been, amongst other things, the author of a very elaborate, if not very lucid, treatise on "logic." As it is, the author cannot but conceive it most singular to see a mode of reasoning, to which, of all reasoners, theologians are most addicted—the negation of a proposition from its consequences—treated as if it were a childish absurdity, and this by a Christian Archbishop and a logician *par excellence*. It is well known to what consequences the theory of Malthus directly leads. Charity, as inculcated by the Old and New Testament, it rejects, as a mischievous and shallow absurdity. And obedience to the Divine command to "increase

* There can be little doubt (says a writer in the "Westminster Review") that the following remark (of Dr. Whately) refers to a passage in the preface to Doubleday's "True Law of Population." "In a very recent publication, I have seen mention made of a person who discovered the falsity of a certain doctrine (which, by the way, is nevertheless a true one, that of Malthus) *instinctively*. This kind of instinct, *i.e.* the habit of forming opinions at the suggestion rather of feeling than reason, is very common."

and multiply," it denounces as sure to be followed by misery and vice, continually increasing in intensity; at the same time that it recommends modes of life which, whilst human nature is what it is, must either lead to vices horrible and unmentionable, or to practices to which it is impossible even distantly to allude without some involuntary violation of that decorum cultivated by all manly and well regulated minds. Further than this, we have seen the belief in these monstrosities lead to consequences even more monstrous than the theory to which they owe their parentage; and we have beheld the laws of humanity and morality outraged and insulted by the actual publication, in cold blood, of a treatise recommending infant murder, and describing the means by which every third child, of married or unmarried parents, might be put to death by a process termed by "Marcus," the writer of this infamous book, one of "painless extinction." These monstrosities my revered relative clearly saw *must* flow from a theory itself so monstrous as that of Malthus; and he therefore pronounced it incredible, and incompatible with the belief in an omniscient, omnipotent, and all-merciful God.

The author would ask the Right Reverend Doctor Whately, not in his character of Arch-

bishop, but of logician, what is there "illogical" in this conclusion, or how he is justified in styling such a conclusion a mode of deciding questions by "instinct?" Is there no such method as the "*argumentum ad absurdum*," or perhaps, in this case, more properly, "*ad horrendum?*" And what is the argument made use of by the author's revered relation but a *reductio ad absurdum*, applied to Malthus and his system, from the mixed absurdity and atrocity of its necessary consequences? This Doctor Whately had better explain before he again talks of deciding such questions "by instinct," when they are really decided by seeing involved consequences incredible by well-constituted minds, and minds unused to conceptions injurious to the character of the Deity. The revered relative to whom the author, in his original preface, ventured to allude, was certainly the least likely of all men to tolerate such notions. He was eminently philosophic in his mode of viewing every question, to which he applied an intellect naturally acute and sedulously cultivated through life: but he had been, during his earlier years, an intimate friend and disciple of a far greater man, and perhaps more learned divine, than Dr. Whately—the celebrated Dr. Priestly, whose theological

opinions he embraced. These opinions led him (whether rightly or wrongly this is no place to decide) to view many of the *dogmata*, which divines of the Anglican Church are bound to inculcate, as utterly abhorrent to all rational and proper conception of the character of the Divine Being. Unaccustomed, therefore, as he was, to contemplate the idea of vindictive and endless punishments in the next world, he naturally shrank from a theory which paints the All-Merciful as dooming his superfluous children to vice and misery perpetual, in this. This, in the author's humble opinion, is the only way of accounting for the proneness of his revered relative to deem that incredible, from the atrocity of its consequences, which the more custom-seared and orthodoxly theological Archbishop of Dublin can coolly contemplate as a providential arrangement. Be that as it may, however, his argument was logical, if not sufficient; and the good mans' memory might have been spared the sneer which a mitred philosopher and strongly nerved "Father in God" has thought fit to cast upon it. To that sneer this volume is the answer. Let the Archbishop read it before he sneers again, and then repeat the sneer, if he dare.

To his readers the author must now finally leave

this subject, together with the volume by means of which he has hoped to throw light upon it. Those readers who really feel and acknowledge the vast social importance of the subject will involuntarily pursue the investigation for themthmselves. Time is perpetually bringing forward instances, various and unexpected, of the truth of the law here attempted to be laid down and illustrated. In a treatise like the present it would have been improper to have quoted individual instances; but the author could easily have referred to numerous examples of persons suddenly cast from a state of competence into want, becoming parents of families, though childless before want knocked at the door; or of couples apparently denied the happiness of offspring, as by a last relenting of nature, becoming with rapidity parents of many children; or of indigent females suddenly married into affluence, being denied a fertility which in a meaner state they might have exhibited. Of all these phenomena, which are strictly in accordance with "the true law of population" (allowance being made, in occasional instances, for peculiarity of constitution), ordinary life is perpetually affording examples, which the reader may note for himself, but which cannot be chronicled in

any other manner. In bidding farewell to his readers, the author takes his leave in full confidence that the theory taught in this volume, must ultimately prevail. It has now been before the world for many years. During that period its foundations have been tried by minds of ample power to discover weakness, if weakness there were, but hitherto without effect. It has, to some extent, gradually changed public opinion on this momentous subject; and, as its author hopes, will in the end fully accomplish that change. In its advocacy its author may safely say for himself, that he has been actuated by no motive of which he needs to be ashamed. He was led to the investigation by accident entirely; and therefore can claim no great credit as the discoverer of a principle. Of the vast importance of the principle, thus by chance disclosed, he, however, was at once aware; and he very naturally determined, if possible, to establish it by proofs too numerous to be evaded and too strong to be resisted. This he hopes he has done. By Bacon's method, the sure though slow method of induction, he has arrived at his conclusions; and he trusts they are now "as a house built upon a rock" which the storms can not injure nor the floods carry away. That

the philosophy here taught goes hand in hand with charity and practical christian benevolence, its author, at least, cannot conceive as derogating from its probability. Through life he has found that the heart is often to be believed before the head; that there are implanted in the human bosom still-voiced monitors, dim perhaps and obscure, but never to be despised; and that the profoundest philosopher ought long to hesitate before he says "no," where nature whispers "yes!"

FINIS.

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